

# **Regional Partner Facilities (RPF) in a time of crisis**

by

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# The Regional dimension of Innovation

- “Both global economic growth and social cohesion require increasing the competitiveness of regions, especially where potential is highest. The comparative advantages that drive innovation and investment are as much a regional characteristic as a national one. For regions to succeed, they must harness their own mix of assets, skills and ideas to compete in a global market and develop unused potential.”

OECD (Conclusions of the Chair, High level Meeting, Martigny, Switzerland, July 2003).



# RIIs are at the center of ERA

## RIIs as key tools for capacity building for:

- Europe to stay at the forefront of scientific and technological research in all fields.
  - forming poles of attraction for talented young researchers and prominent scientists (**reversing the brain drain and promoting brain exchange!**).
  - providing high level of scientific and technical training
  - Europe to be a protagonist in tackling current global challenges (e.g. environmental and climatic issues, natural disasters etc.)
  - promoting scientific innovation and contributing to the competitiveness of European regions.
- ➡ RIIs provide an excellent test-bed for fulfilling the priorities of HORIZON 2020.



# However,

- ➡ what are the options for RIs sustainability, especially in the present unstable economic environment?
- ➡ the prime mission of RIs is serving scientific excellence. How can socio-economic benefits in different Member States be enhanced without compromising this mission?
- ➡ how to maximize the European Added Value (EAV) of RIs by exploiting the knowledge and talent which exists in European regions?
- ➡ what practical measures should be adopted for a systematic and stable support of RIs at regional level (e.g. overcome “cultural” barriers for mid and long term commitments)?
- ➡ what synergies between different EU (e.g. HORIZON 2020, Cohesion), national and regional policies should be established for the optimal use of European resources in developing and using RIs?



# ***A real challenge : the sustainability of European RIs***

1. A question of sustainability: 48 ESFRI projects, including e-RIs, are discussed in the context of a major economic crisis
  - ➔ requiring major financial investment (~20 b€)
  - ➔ long term commitment for operation (~2 b€/year)

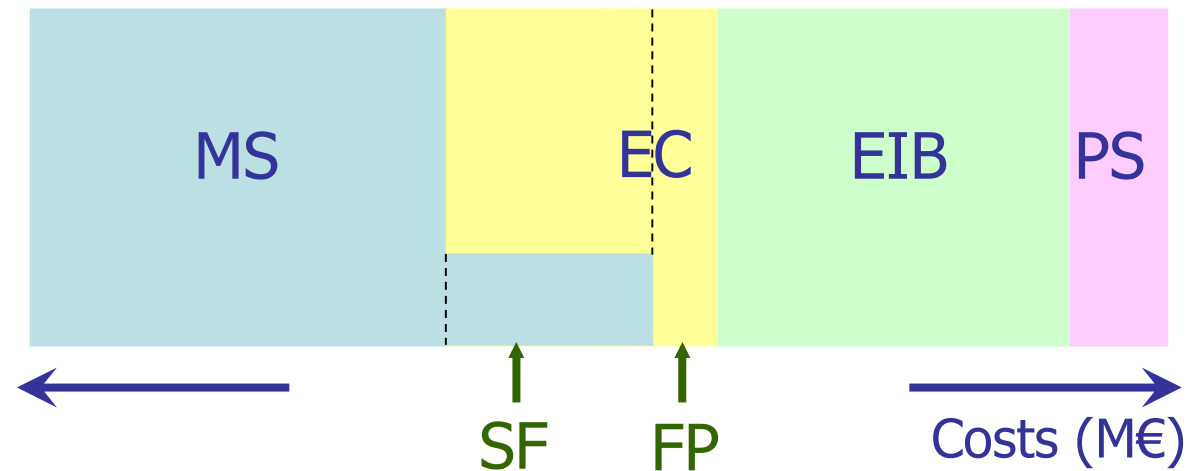
*Note: The total amount for RTD activities under Structural Funds is currently ~50b€, from which 9.8 b€, (i.e. 1.4 b€ per year) is allocated for "RTD infrastructures and centers of competence"*

**However: The impact of SF on FP7 RIs was rather limited!**

2. Inherent complexity of the process of developing major projects in partnerships between several countries
  - ➔ many delays associated with international negotiations and discrepancies in national decision-making



# A clear need for financial synergies



## Code

■ **MS: Member States**

■ **EC: European Commission**

■ **EIB: European Investment Bank**

■ **PS: Private Sector**

**SF: Structural Funds**

**FP: Framework Programme**

☞ The role of EC FPs support as a “catalyst” for RI development

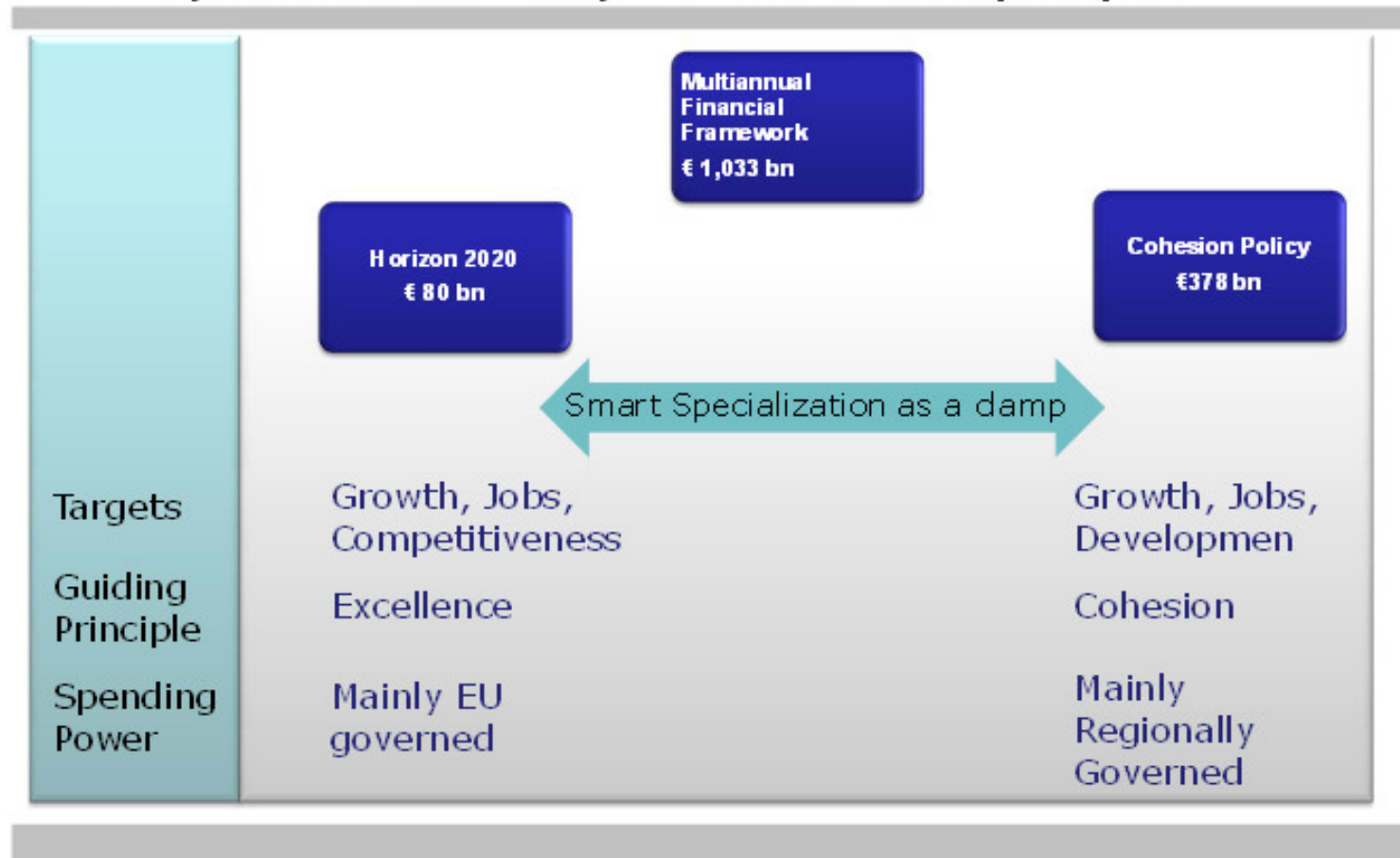
☞ The role of the European Investment Fund (EIF) and other schemes such as PPP initiatives with high multipliers.

# From FP7 to Horizon 2020

- An **increased budget**, from around €1.7 billion (FP7) to €2.5 billion (Horizon 2020 – 2011 constant prices)
- New activities to support the **implementation** and **operation** of world-class infrastructures such as **ESFRI** infrastructures
- **Continuation** of the successful FP7 **Integrating Activities (I3)**
- **Reinforcement** of the support to **e-infrastructures**
- New objective of better exploiting the **innovation potential** and **human capital** of infrastructures
- Synergies with Structural Funds through the concept of **“Smart Specialization”**

# Linking HORIZON 2020 to Regional policies through “smart specialization”

The Role of Smart Specialization as a clamp between Cohesion Policy and Innovation Policy – however different principles



Possible bottlenecks: a) Limited understanding and/or different way of thinking, b) Different selection criteria



# Some potential undesirable side-effects:

- ☞ “Smart specialization” relies on “prioritization” for a better use of resources. In a region with 30% unemployment what is the priority?
- ☞ an exit strategy and a mechanism for adaptation should be foreseen together with the commitment for “specialization”, especially in a time of crisis
- ☞ Need for openness: There is danger for the most innovative and groundbreaking research to be set aside!
- ☞ Other....



# The impact of Integrating Activities (I3)

(Transnational Access (TA), Joint Research Actions (JRA), Networking)

**Both quantitative and qualitative issues should be considered:**

- ➡ Level of funding/year was similar for FP6 and FP7
- ➡ Relatively small number of researchers but high profile projects.
- ➡ Differences in operational features: TA in the form of “Services” (e.g. Synchrotrons) or as “Collaborative Projects” (e.g. Lasers) serving the high end of the field.
- ➡ There are RIs serving only a small number of users but in critical fields for European competitiveness (e.g. aerospace industry).
- ➡ There are RIs, as the “e-Infrastructures”, serving broader scientific communities worldwide (e.g. GEANT).
- ➡ **RIs are environments which promote scientific excellence.**



# Research Infrastructures and scientific excellence

In only one RI cluster:  
15 Advanced and 10 Early Stage ERC Grants



# RIs, Industry and Innovation

- ☞ FP supported RIs link to the needs of Industry and Society, even if this link can not be as yet quantified.
  - **Industry as supplier, user and as an RI itself.**
- ☞ RIs also enable advanced knowledge creation and dissemination enhancing the probability of innovation.
- ☞ Altogether the scientific culture prevailing in the RIs environments is conducive for serving industrial needs at high level and creating innovation as a result of forefront research.
  - RIs may support both **demand-driven** innovation for current needs and **scientific curiosity-driven** innovation for future applications.



# Socio-economic impact of RIs

- ➡ I3 alone is not adequate in establishing coherence (or competitiveness) at regional level: The formation of regional RI hubs, which provide good science, technology, talent and entrepreneurial challenges are important for having regional impact and simultaneously add value to the central RIs.
- ➡ Activities within European RIs may accelerate processes which enhance the scientific and entrepreneurial culture in European regions.
- ➡ The development and operation of RIs benefit local and regional companies and provide new jobs at many levels.

Overall European RIs form dynamic “eco-systems” which may provide prospects and opportunities to the most valuable asset of European regions: People!

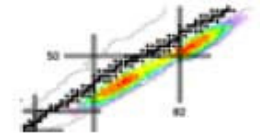


# Example 1: the SPIRAL 2 ion accelerator

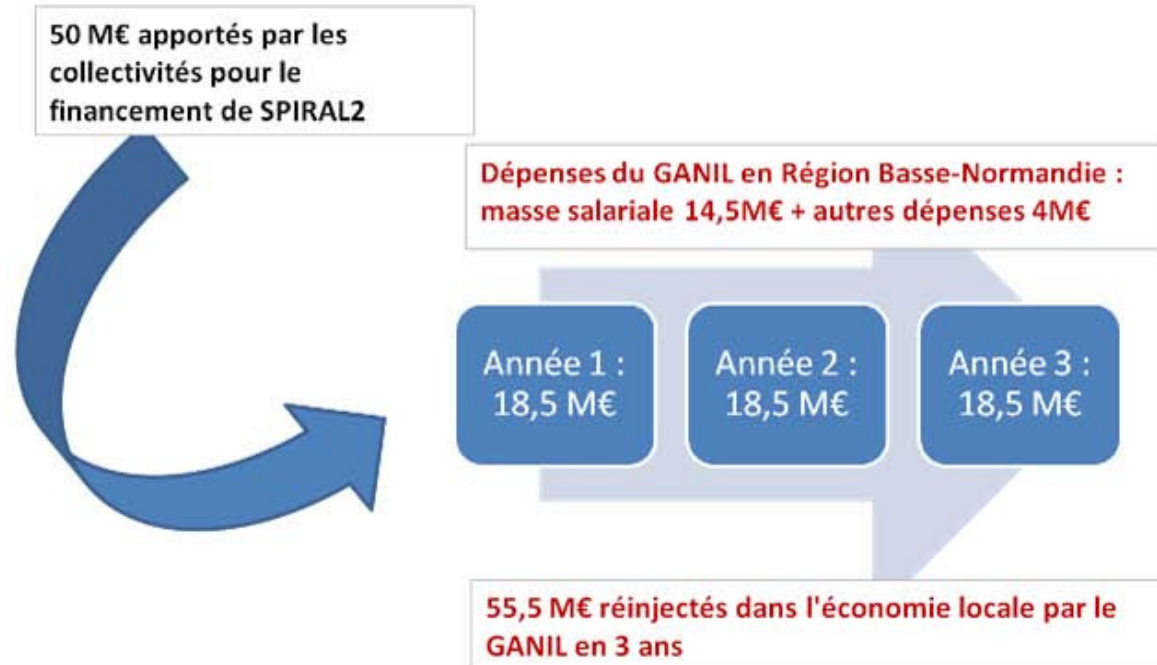


## *Social & Economical Impacts*

*How the contributions of the local authorities impact the local économie*



**For the year 2007, Ganil has spent 4M€ in the local companies as well as 14,5Me injected as salaries in the local economy. Therefore when the region invests 50Me in SPIRAL2, GANIL redistributes it in the local economy in less than 3 years**

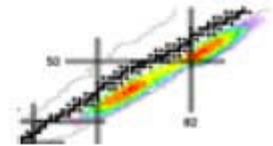






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## Conclusions



The GANIL LSF has created **253** direct high level jobs and **345** indirect ones .SPIRAL2 construction will contribute to 20-30 more permanents high-level jobs

In the local economy ,through its running and investments budget GANIL contributes to **111** additional local jobs

This correspond to a total of **18,5 M€** injected in the economy each year. Thanks to “Normandy incubation” ,**28 young start up** have been created (11,5 M€ business)

GANIL has quite a large impact on the local region economy , on its future development and is strongly supported at the regional level .

# RIIs and Regional Policy Issues

The “smart growth for Europe 2020” in a time of crisis should place emphasis on capacity building through:

- a) supporting RIIs based on regional **scientific excellence and talent** thus optimizing the use of European resources and complementing the impact of major RIIs.
- b) establishing networks of RIIs with thematic clusters in less research-intensive regions.
- c) supporting “**Regional Partner Facilities**” (RPFs)” for enhancing the impact of scientific talent and expertise in the Regions and the global impact of European RIIs.

Example: Greek researchers in 2012 (i.e. in a year of deep crisis) produced 9281 scientific papers with 1.13% of them at the top 1% of most cited papers worldwide (Nature, v.492, 324 (2013)). – A performance comparable to that of highly research active countries!





# Example 2: The Laser Facility at FORTH in Crete (a member of the LASERLAB-Europe Network)

An ambitious project since 1990!

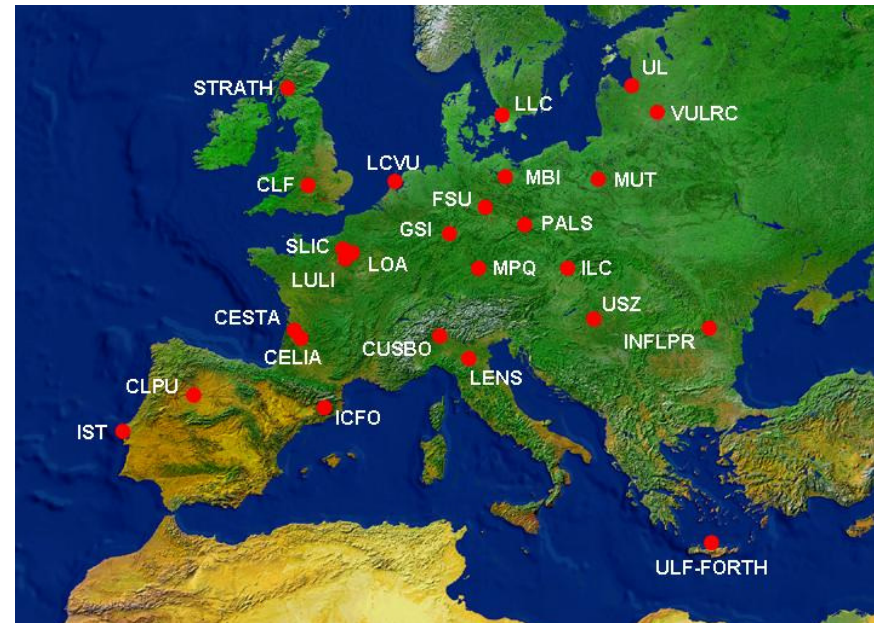
## Laserlab – Europe

Integrated Infrastructures Initiative

- 26 laser infrastructures
- 19 European countries

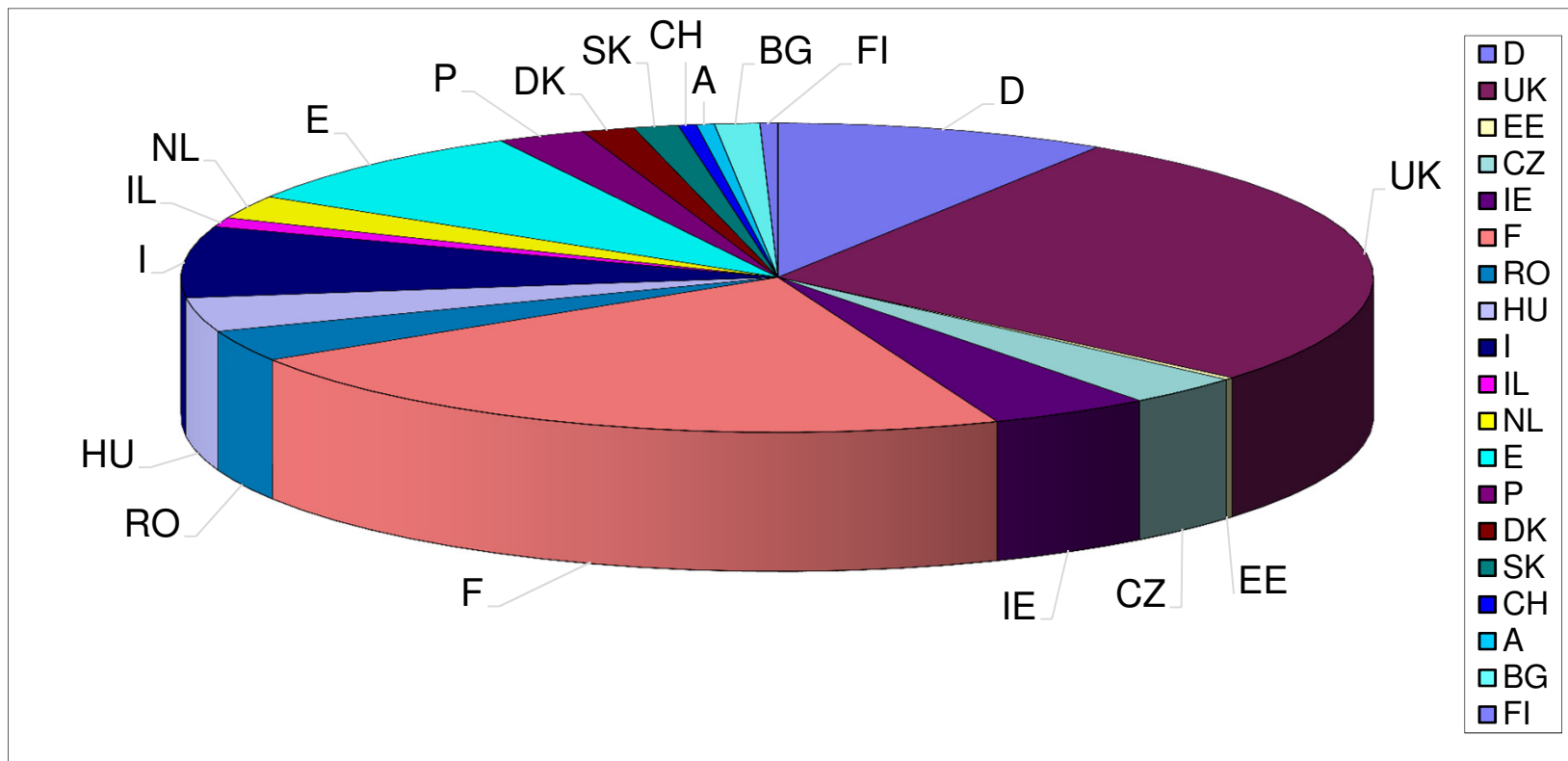
## Goals

- To co-ordinate most of the largest European national laboratories in laser-based inter-disciplinary research
- To strengthen the European leading role in laser research
- To provide Transnational Access opportunities in a co-ordinated fashion, (4000 days of access) to European researchers.
- **Basis for the development at FORTH of a RPF associated to the ELI RI**  
**FORTH is a protagonist in the Attoscience field, an objective of ELI**



<http://www.laserlab-europe.net/>

# TA provided during 1990-2012 at the FORTH Laser Facility



270 projects, 440 researchers from 19 European countries in 3043 days of access

# Socio - economic impact of IESL - FORTH

The Laser RI at FORTH has been the nucleus for the development of IESL-FORTH which has:

- led to the creation of 240 jobs of mostly highly skilled personnel (administrative, technical, scientific)
  - the cost of salaries for these jobs is  $\sim 6.5$  M €/year while the Regular Budget received from the State is ca. 2 M €/year!
  - apart from salaries, contributes directly to the local economy  $\sim 4$  M €/year (consumables, services, scientific tourism etc)
- a multiplier effect on local business and the establishment of 4 spinoff companies
- become the pole of attraction of talented young researchers and prominent scientists in the region of Crete
- contributed to the development of the University of Crete
- created a "scientific school" with alumni and networks worldwide
- a cultural, social and educational impact on the local community including outreach activities
- active partner in Photonics21 and other Key Enabling Technologies (KET)

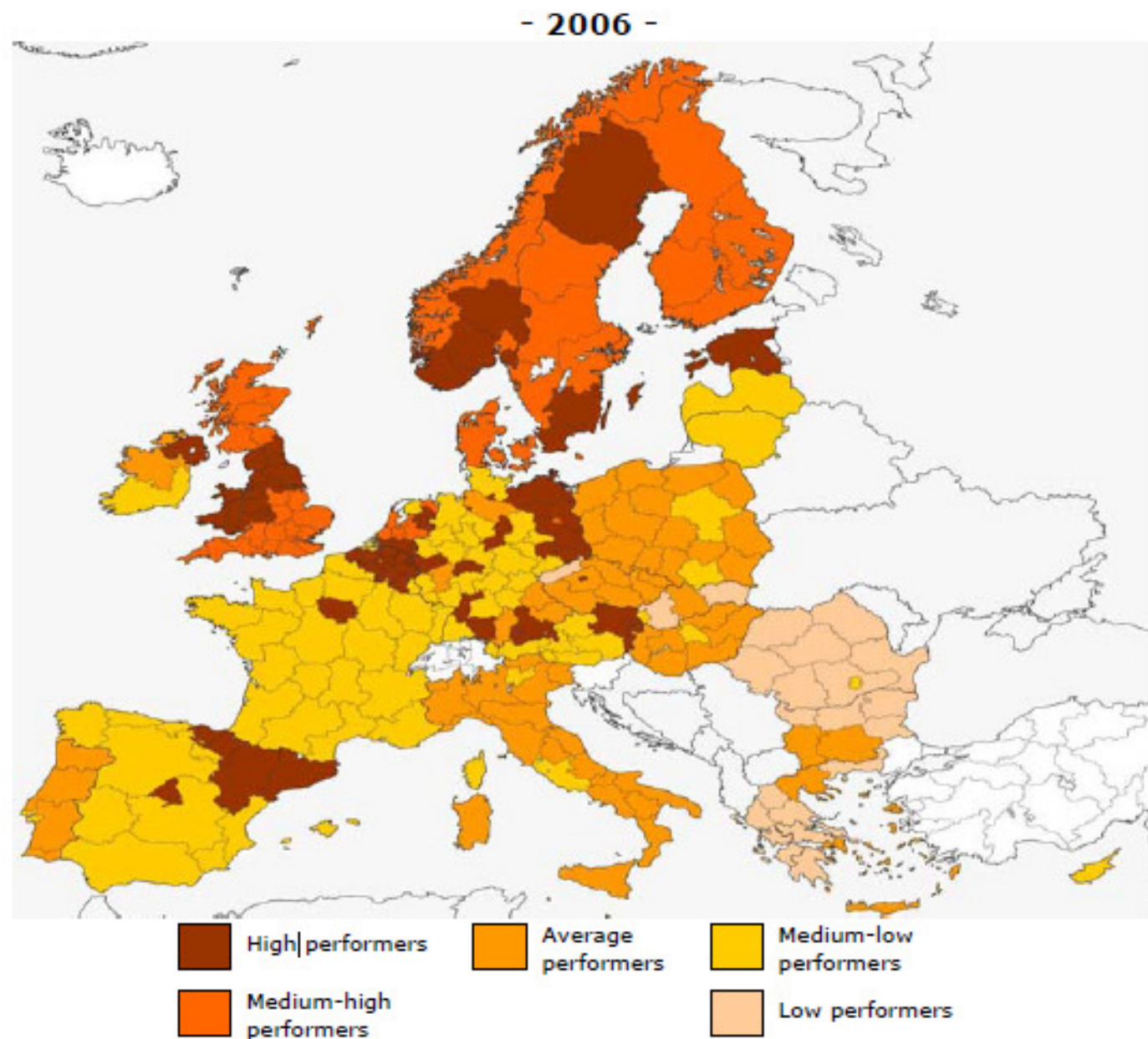


# Setting up an RPF

- evaluate the performance of the Region as Innovation enabler
  - **assess the impact of facilities (RPF)** on the economy of the region, in particular in terms of creation and development of innovative businesses (including spin-offs, start-ups, etc.).
  - evaluate the ability of the RPF to be **competitive internationally** e.g. FORTH has ranked **12<sup>th</sup>** among all European research centers for participations in FP7 programmes (2007-2010).
  - **have a strong international dimension and participation in ambitious European projects:** (EU Flagships, KET, other) e.g. FORTH is an active participant of the Photonics 21 Technology Platform, the Graphene Flagship, the Nano/Micro electronics initiatives, other.
  - ensure from the Regional and National authorities long term commitment of SF.
- ☞ **A major obstacle: The increasing Bureaucracy! Overcome tedious EU and national rules for using SF.**



**Figure 2: Regional performance groups for Enablers**





### 2.3.2 Participation of research organisations

#### Top research organisation participants

Table 3 below presents the general and within-group rankings of the 20 research organisations with the highest numbers of participations in FP7 signed grant agreements during the period 2007-2010. It is worth noting that these organisations also occupy the highest positions in the overall ranking of participations in FP7.

**Table 3:** Ranking of top 20 participant REC organisations in FP7 signed grant agreements in terms of counts of participations for the period 2007-2010.

REC RANK	OVERALL RANK	INSTITUTION NAME	COUNTRY
1	1	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	FR
2	2	FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG	DE
3	3	COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	FR
4	4	MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN	DE
4	4	CONSIGLIO NAZIONALE DELLE RICERCHE	IT
6	6	CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	ES
7	14	INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE	FR
8	15	TEKNOLOGIAN TUTKIMUSKESKUS VTT	FI
9	16	DEUTSCHES ZENTRUM FUER LUFT- UND RAUMFAHRT	DE
10	18	JOINT RESEARCH CENTRE- EUROPEAN COMMISSION	EU
11	25	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK	NL
12	28	FOUNDATION FOR RESEARCH AND TECHNOLOGY HELLAS	EL
13	29	STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK	NL
14	30	FUNDACION TECNALIA RESEARCH & INNOVATION	ES
15	36	INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET EN AUTOMATIQUE	FR
16	40	INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	FR
17	48	INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW	BE
18	70	MEDICAL RESEARCH COUNCIL	UK
18	70	CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS	EL
20	80	CENTRO RICERCHE FIAT SCPA	IT

# **Priorities and Vision**

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

# **In conclusion:**

- ➡ **RPFs may be an effective way towards enhancing scientific and technological excellence and simultaneously countering societal, cultural and economic challenges at regional level.**
- ➡ **Select RPF's on the basis of:**
  - **the scientific and innovative stand of their host organisation placing emphasis on excellence**
  - **their presence in National Roadmaps or Strategic Regional Agendas (e.g. RIS).**
  - **their open character and possibility of offering Access**
  - **the EAV they provide to ESFRI RIs**
  - **level of commitment for national or regional support**