



# **Smart Specialisation Strategies: Charting out European Structural and Investment Funds Investments in Research and Innovation**

**Symposium on European Funding Instruments for the Development of  
Research Infrastructures, Madrid, 19 April 2016**

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# Structure

- **Results** from 2007-2013 Structural Funds for research and innovation
- **Lessons learnt** from past Cohesion Policy for research infrastructure
- **Opportunities** for research infrastructures until 2020
- **Challenges** for research infrastructure investments in terms of performance & smart specialisation

# Key Achievements of Cohesion Policy in 2007-13

## Creating jobs and growth & Investing in people

- ✓ Income has increased in the poorest EU regions with **GDP** per capita growing in these areas from 60.5% of the EU average in 2007 to 62.7% in 2010.
- ✓ About **940 000 new jobs** were created
- ✓ **2.4 million** participants in ESF actions supporting access to employment **found a job within 6 months** (2007-2010).

## Strengthening research and innovation

- ✓ **114 000 research projects**
- ✓ **35 500 R&I co-operation projects**
- ✓ **41 600 new long-term research jobs** created.

## Supporting SMEs and start-ups

- ✓ **254 800 SMEs** received direct investment aid.
- ✓ More than **323 000 jobs** were created in SMEs.
- ✓ **121 400 start-ups** supported

**8.2 million** more EU citizens were covered by **broadband connectivity**

## Improving the environment

- ✓ **Water supply** systems have been modernised, benefiting **5.9 million citizens**
- ✓ More than **6.8 million citizens** served by **waste water** projects
- ✓ **1 100 Km<sup>2</sup>** of Area rehabilitated

## Modernising transport and energy production

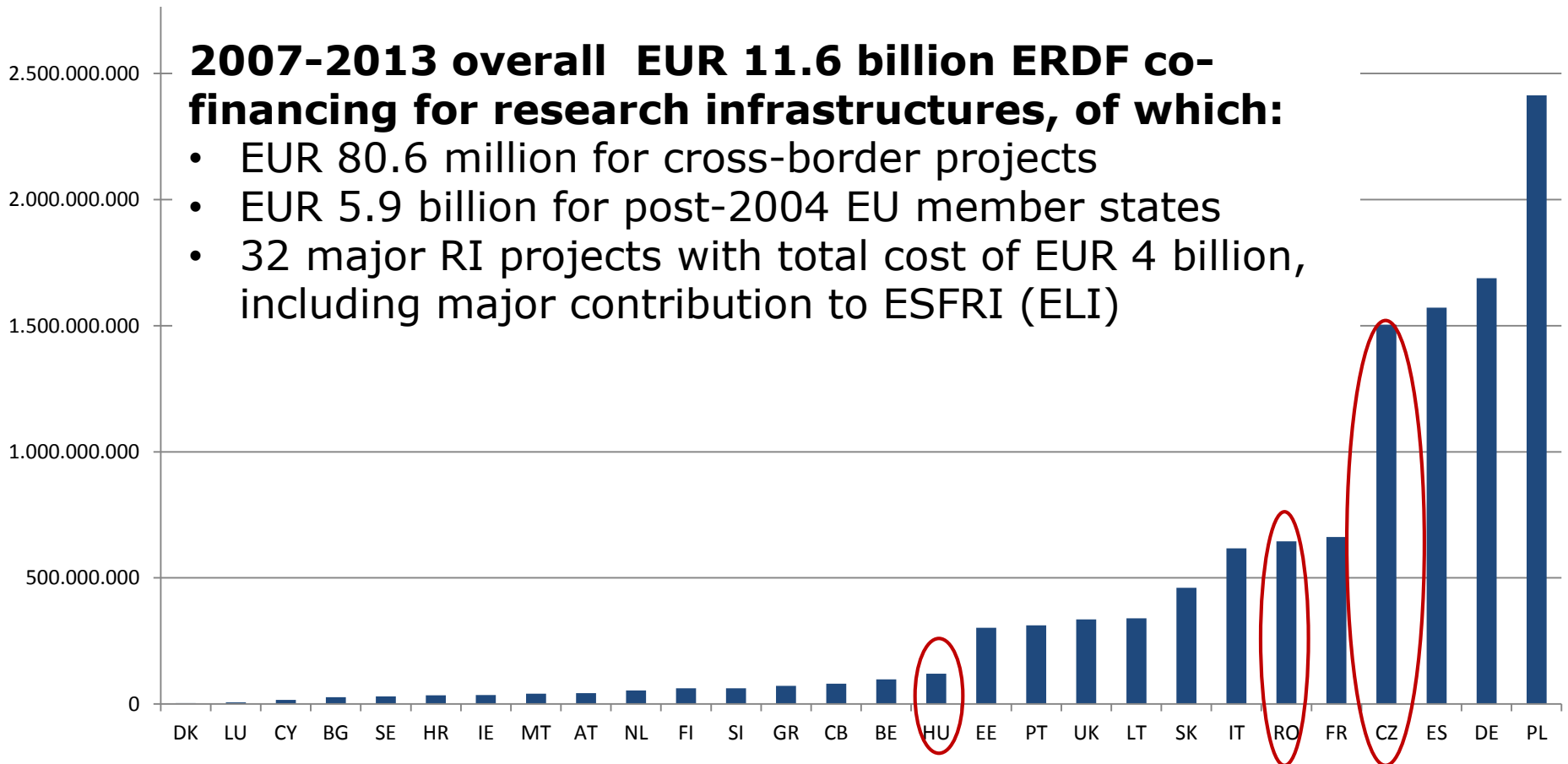
- ✓ **3855 MW additional capacity** of renewable energy production
- ✓ **4 680 Km roads** built and 24 900 Km reconstructed
- ✓ **287 Km railways** built & 3 940 Km reconstructed

Source: [http://ec.europa.eu/regional\\_policy/en/policy/what/key-achievements/#4](http://ec.europa.eu/regional_policy/en/policy/what/key-achievements/#4)

# ERDF funding for research infrastructures

**2007-2013 overall EUR 11.6 billion ERDF co-financing for research infrastructures, of which:**

- EUR 80.6 million for cross-border projects
- EUR 5.9 billion for post-2004 EU member states
- 32 major RI projects with total cost of EUR 4 billion, including major contribution to ESFRI (ELI)



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# Lessons learnt – Research infrastructures

- Research excellence per se is no objective for Cohesion Policy, but just a tool for competitiveness and growth
- Big is not necessarily beautiful (over-capacities? top crust?)
- Research Infrastructures do not *per se* lead to regional socio-economic development: connected to innovation eco-system?
- Technology & knowledge transfer to firms in the region needed
- Business plans for research infrastructures remain wishful thinking, unless energetically implemented
- Academia-business cooperation requires time and efforts
- Links to regional economy need to be planned & fostered from the out-set, including alignment to specific R&I needs and potentials of the regional economy

**Smart Specialisation is the key**

# What is Smart Specialisation?

Research & Innovation Strategy for Smart Specialisation (RIS<sup>3</sup>)=  
**Integrated, knowledge-driven economic  
transformation agenda tailored to the local  
context**

Different pathways for innovation and development, including:

- a) rejuvenating** traditional sectors through higher value-added activities and new market niches;
- b) modernising** by adopting and disseminating new technologies;
- c) diversifying** technologically from existing specialisations into related fields;
- d) developing new economic activities** through radical technological change and breakthrough innovations;
- e) exploiting new forms of innovation** such as open and user-led innovation, social innovation and service innovation.

See: <http://s3platform.jrc.ec.europa.eu/ris3-guide>

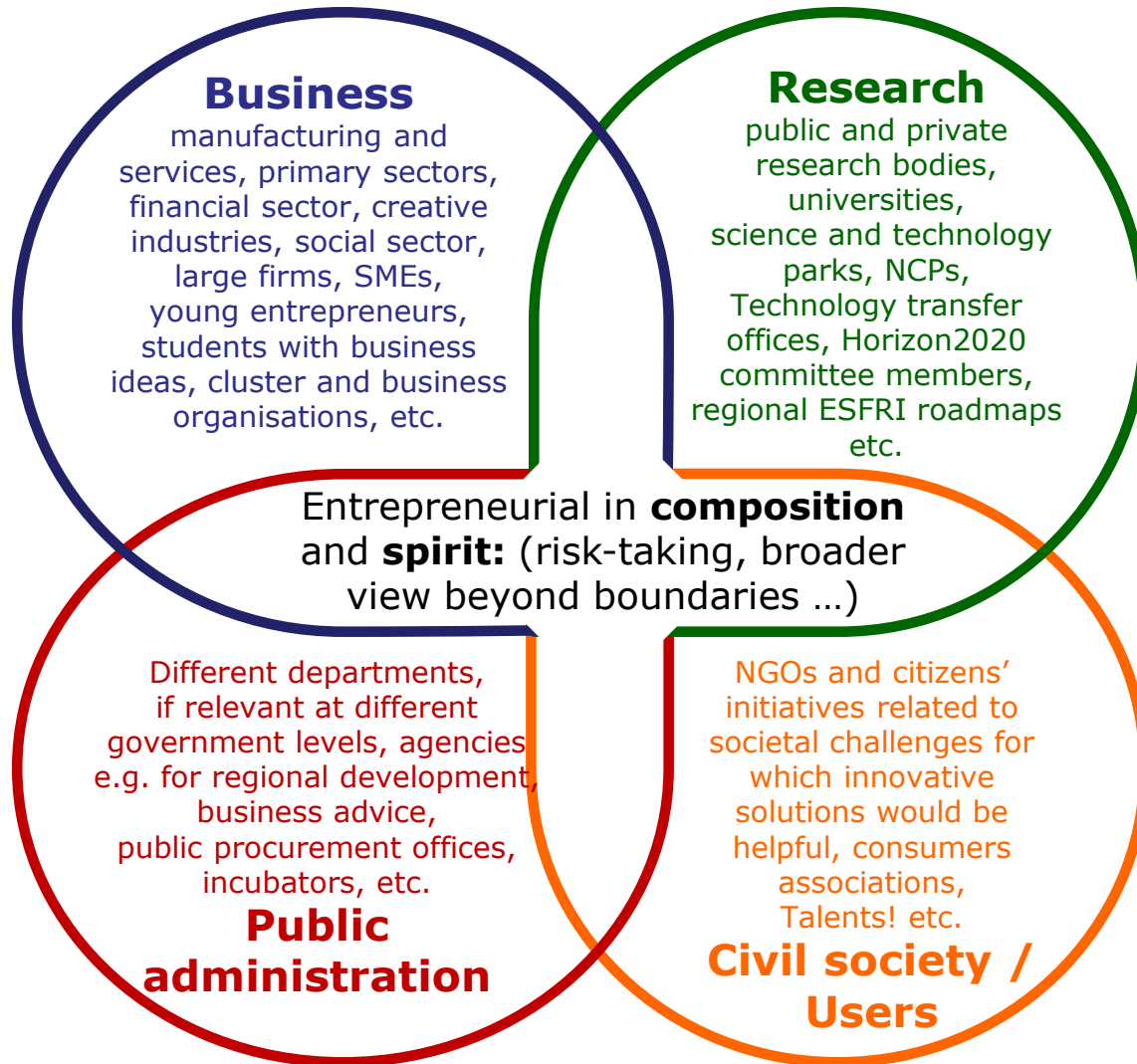


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[http://ec.europa.eu/regional\\_policy/sources/docgener/guides/synergy/synergies\\_en.pdf](http://ec.europa.eu/regional_policy/sources/docgener/guides/synergy/synergies_en.pdf)







# RIS<sup>3</sup> design: Entrepreneurial Discovery Process

- **Reiterative process**
- **Creative thinking / combination**
- **External view needed**

See Common Provisions Regulation for all ESI Funds, No. 1303/2013) annex 1, point 4.3.2.

See also annex III of RIS3 Guide:  
<http://s3platform.jrc.ec.europa.eu/s3pguide>

# RIS<sup>3</sup> = Ex ante conditionality for ERDF

## *Investment priority 1.a:*

*"1. strengthening research, technological development and innovation through  
(a) enhancing **research and innovation (R&I) infrastructure and capacities** to develop R&I excellence and promoting **centres of competence**,  
in particular those of **European interest**"*

**1. Smart specialisation strategy:** Research & innovation infrastructure projects have to fit into RIS<sup>3</sup>, i.e. be part of the place-based economic transformation agenda of the host region / MS

Over 50  
RIS<sup>3</sup>s still  
need some  
work

**2. Multi-annual plan for Research and Innovation**

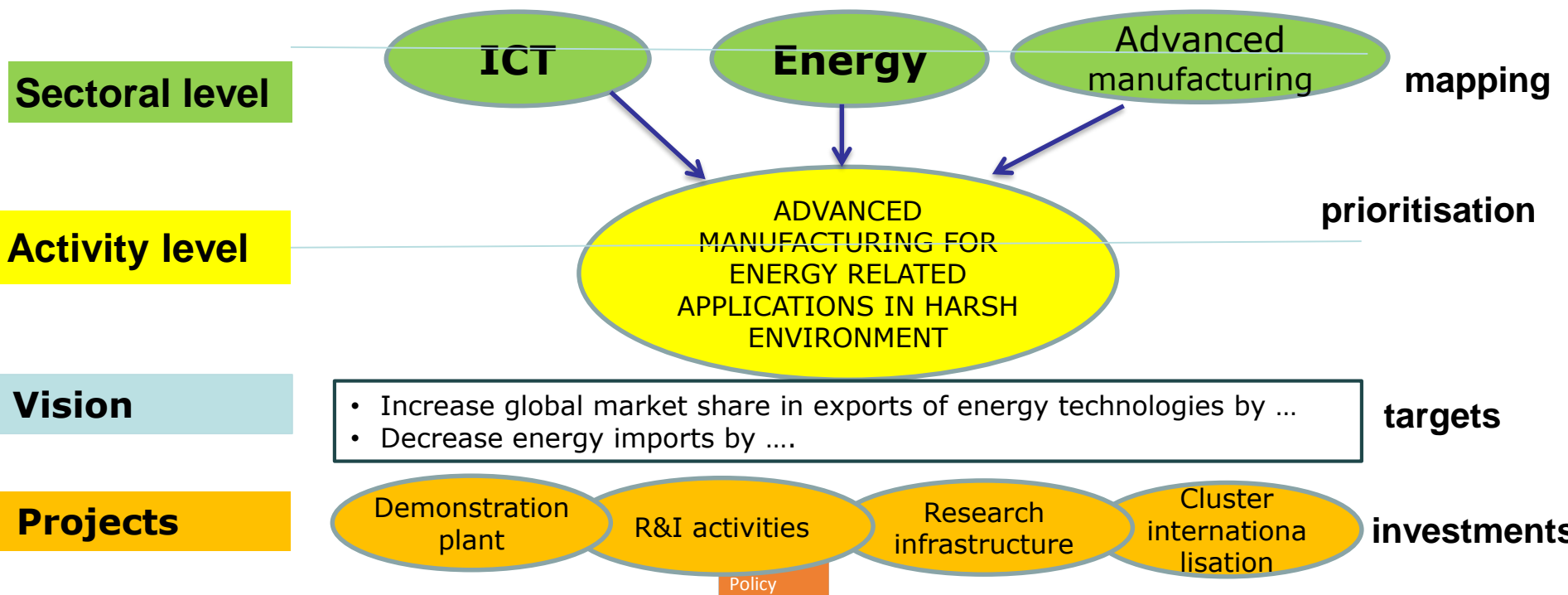
**Infrastructure:** projects have to fit into an indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and, where appropriate, the European Strategy Forum on Research Infrastructures (ESFRI)

Around 20  
RI-plans  
still need  
some work

# The notion of "smart specialisation priority"

It is about **developing new specialities based on regional concentration of knowledge, competence and market potential (dynamic, forward looking)**

Not understood as a sector or specialised relative to other regions (passive / static / back-wards-looking)



# Research Infrastructures as part of

## **RIS<sup>3</sup>: How an ideal situation should look like:**

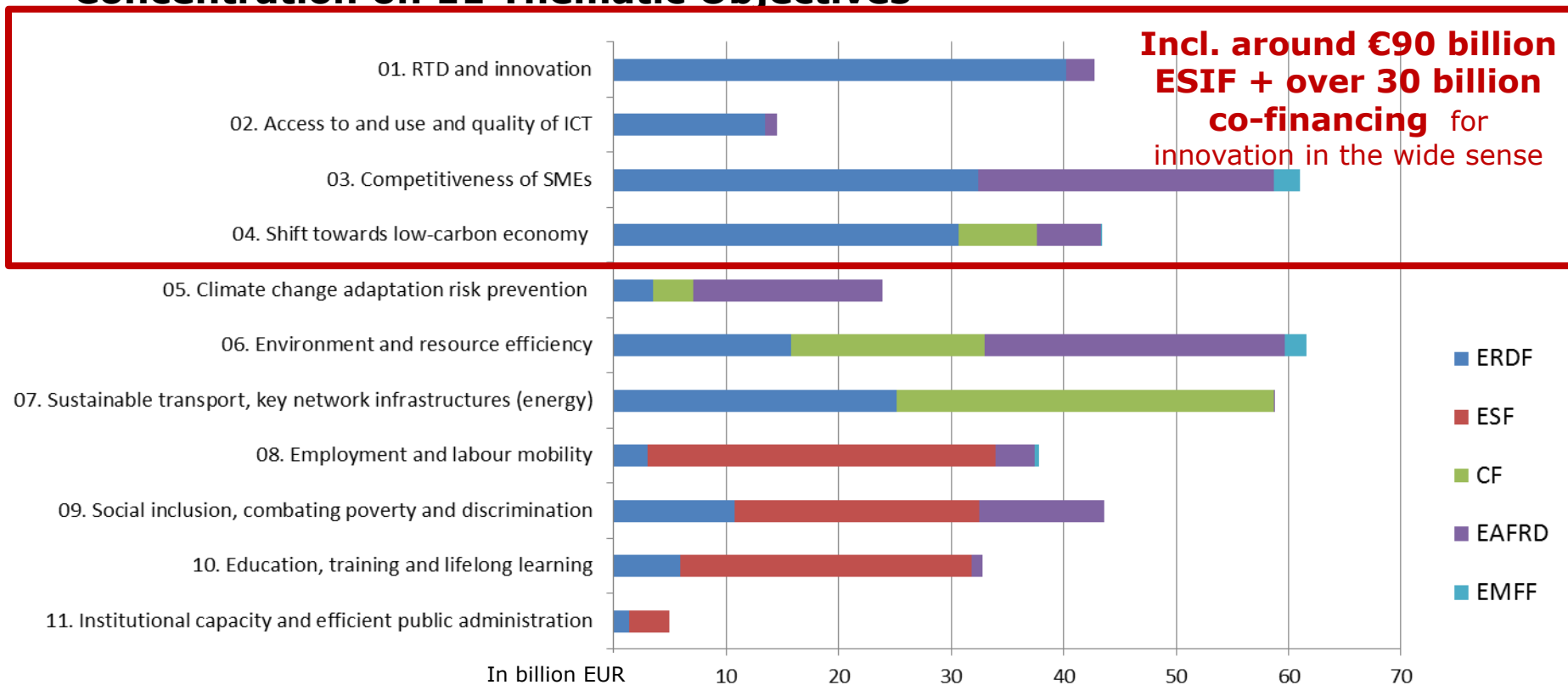
- ✓ RIs as integral part of implementation roadmaps strategies, not "cathedrals in the desert" & large-scale budget absorbers
- ✓ RIs identified in an entrepreneurial discovery process, jointly by academia, researchers and enterprises
- ✓ RIs aim to become crystallisation points for economic change and growth: cooperation/ integration with clusters, technology parks, incubators, SME support, LivingLabs, demonstrators, etc.
- ✓ Importance of RIs for international attractiveness & connectedness: including for private investors & brain-gain ...
- ✓ RIS<sup>3</sup> monitoring includes evaluation of RIs and their role in RIS<sup>3</sup>: relevant also for RIS<sup>3</sup> adjustments

# Structure

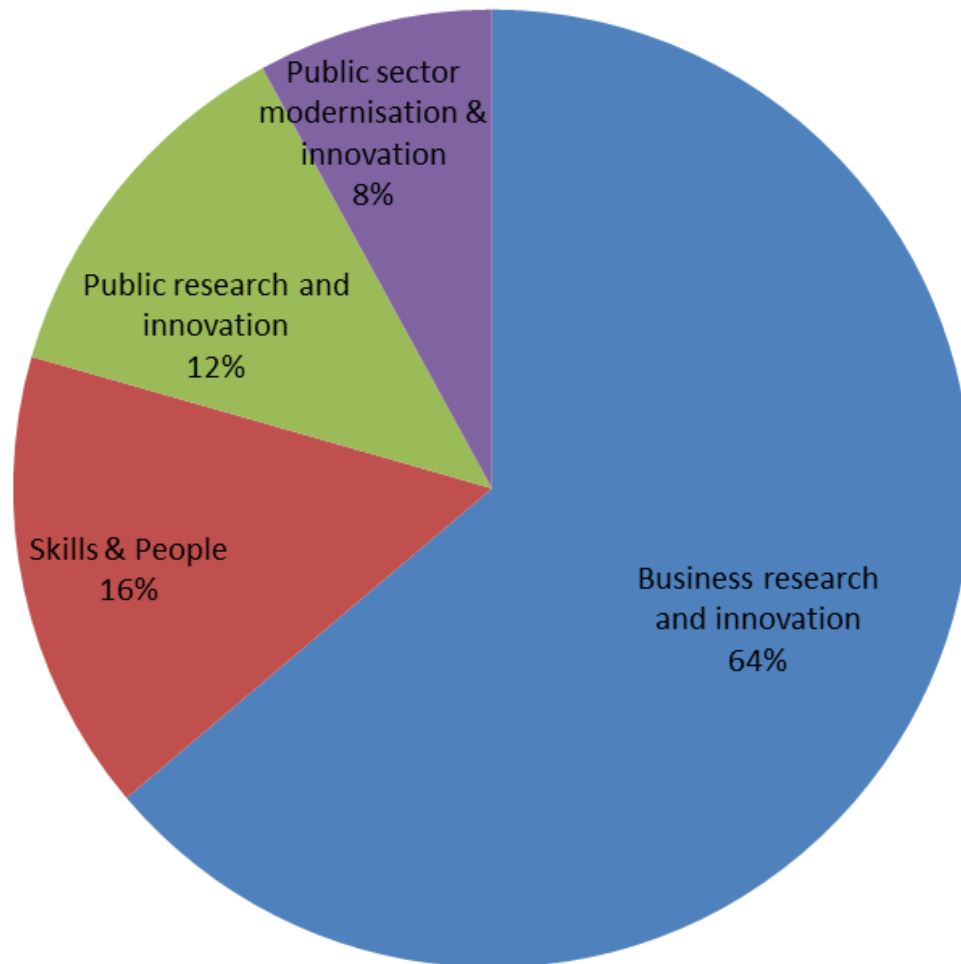
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# ESIF programming 2014-20: State of Play

- **EUR 451 billion of ESIF + EUR 183 billion of national co-financing**
- **456 national and regional and 79 INTERREG cooperation programmes**
- **Concentration on 11 Thematic Objectives**



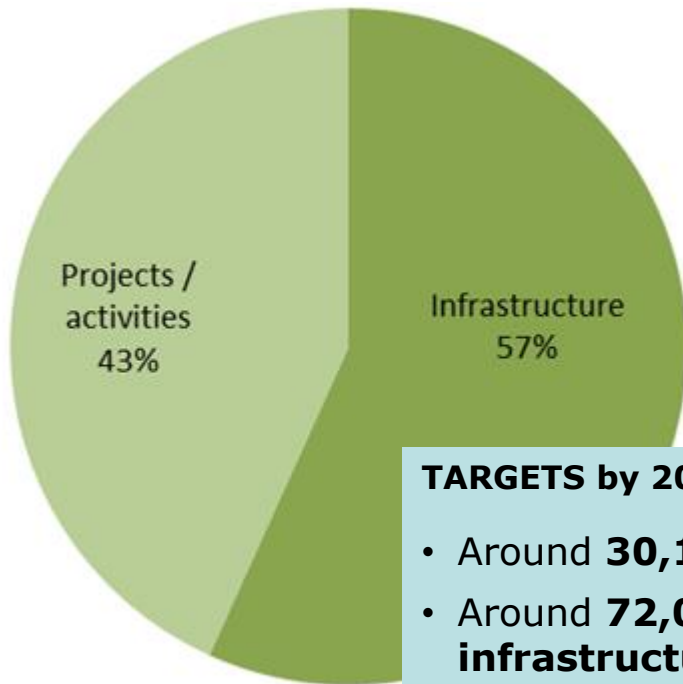
# ESIF Innovation Investments 2014-2020



ERDF & ESF allocations:

- Business research & innovation:  
EUR 60 billion
- Skills & People:  
EUR 14.5 billion
- Public research & innovation:  
EUR 11.7 billion
- Public sector modernisation & innovation:  
EUR 7.4 billion

# ... of the public research & innovation investments:



## ERDF allocations:

- Public research & innovation activities:  
EUR 5.1 billion
- Public R&I infrastructures:  
EUR 6.6 billion

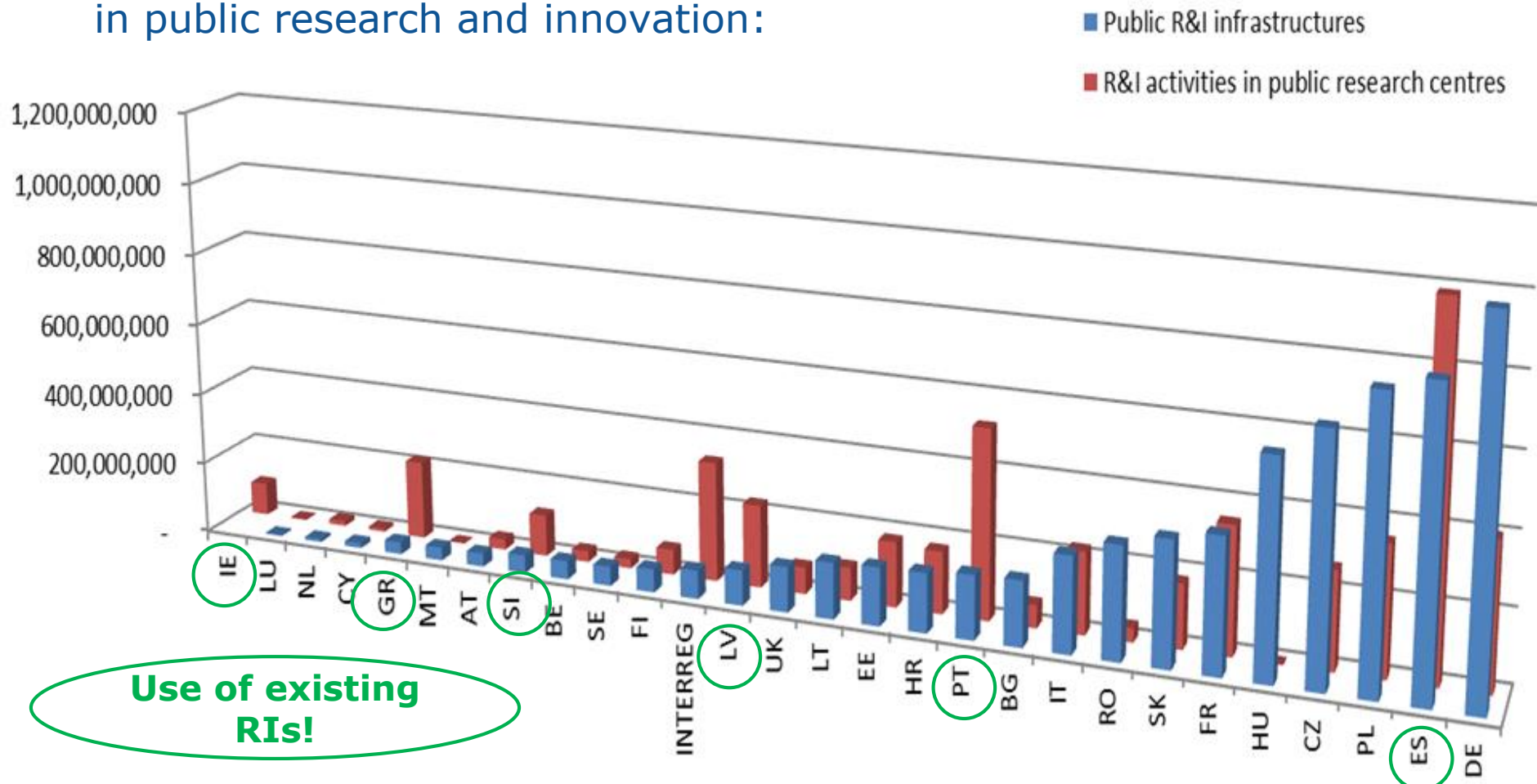
## TARGETS by 2023:

- Around **30,100** new researchers in supported entities
- Around **72,000** researchers working in improved research infrastructure facilities
- Around **72,000** enterprises cooperating with research institutions
- Around **1,200** research institutions participating in cross-border, transnational or interregional research projects - Interreg



# ESIF investment plans in RIs:

Country break-down of ERDF investments until 2020  
in public research and innovation:



**List is indicative & incomplete** as majority ERDF projects is not "major"

# ESIF investment plans in RIs:

Estimated EUR 1.1 billion for **major R&D infrastructure** and centres of competence in a specific technology (= over EUR 50 million):

<b>Ceska Republika</b>	<ul style="list-style-type: none"> <li>• Biotechnologické a biomedicínské centrum Akademie věd a Univerzity Karlovy</li> <li>• Fakultní nemocnice u sv. Anny v Brně - Mezinárodní centrum klinického výzkumu (FNUSA - ICRC)</li> </ul>
<b>Deutschland (Saxony)</b>	<ul style="list-style-type: none"> <li>• Umbau und Sanierung Adolf-Ferdinand-Weinhold-Bau FKZ 2009153</li> </ul>
<b>France</b>	<ul style="list-style-type: none"> <li>• Terra botanica (Pays de la Loire)</li> <li>• Campus universitaire de Guyane</li> <li>• Construction du nouveau bâtiment de l'Institut Jean Lamour à Nancy</li> </ul>
<b>Hrvatska</b>	<ul style="list-style-type: none"> <li>• Biosciences Technology Commercialisation and Incubation Centre - Biocentre</li> </ul>
<b>Lietuva</b>	<ul style="list-style-type: none"> <li>• Establishment of National Centre of Physical and Technological Sciences</li> </ul>
<b>Magyarország</b>	<ul style="list-style-type: none"> <li>• ELI lézer kutatóközpont megvalósítása (ELI-ALPS) nagyprojekt, 1. fázis</li> </ul>
<b>Polska</b>	<ul style="list-style-type: none"> <li>• Centrum Zaawansowanych Materiałów i Technologii</li> <li>• Centrum Badań Przedklinicznych i Technologii (CePT)</li> <li>• Dolnośląskie Centrum Materiałów i Biomateriałów Wrocławskie Centrum Badań (EIT+)</li> <li>• Budowa i wyposażenie Wielkopolskiego Centrum Zaawansowanych Technologii w Poznaniu</li> <li>• Centrum Nowych Technologii „Ochota” Uniwersytetu Warszawskiego</li> <li>• Budowa Budynków Wydziałów Chemii i Biologii Uniwersytetu Gdańskiego</li> <li>• Centrum Czystych Technologii Węglowych</li> <li>• Centrum Nauk Biologiczno-Chemicznych UW - Kampus Ochota (CENT III)</li> </ul>
<b>România</b>	<ul style="list-style-type: none"> <li>• Extreme Light Infrastructure-Nuclear Physics</li> </ul>
<b>United Kingdom</b>	<ul style="list-style-type: none"> <li>• Science City York</li> <li>• Technology Innovation Centre (TIC), Strathclyde</li> <li>• National Graphene Institute</li> </ul>

# ESIF investment plans in ESFRIs:



## European Spallation Source

Multi-disciplinary Research Infrastructure based on the world's next-generation neutron source co-hosted by Lund (SE) & Copenhagen (DK)

- ✓ **€20 million will be allocated by the national ERDF programme of Sweden.**



## Extreme Light Infrastructure

Some of the most intense lasers world-wide, to develop new interdisciplinary research opportunities with light from these lasers and secondary radiation derived from them. ELI is currently based on three sites: Dolní Břežany (CZ), Szeged (HU) and Măgurele (RO).

**Over EUR 375 billion will be allocated from the Operational Programmes of the current programming period:**

- ✓ **RO: EUR 116.3 million – infrastructure**
- ✓ **HU: EUR 83.2 million – infrastructure**
- ✓ **CZ: EUR 176.4 million - activities**

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## Challenges:

- 1. Get from programmes & strategies to viable, mature investment projects ...*
- 2. Align RIs' business & financing plans to state aid rules ...*
- 3. Make RIs work for smart specialisation & economic transformation*

# 1. From programme & strategy to viable, mature investment projects

## Support for project development:

- **Horizon 2020** research infrastructures support: scientific & technological feasibility
- **ERDF - JASPERS** & technical assistance: cost-benefit analysis & business plan for running & financing RIs
- **European Investment Advisory Hub** of the EFSI (EIB): bankability of projects

**Synergies & Gaps?**

# Special Rules & Support for Major Projects

- **Scrutiny of major projects** ( $\geq$  € 50 million of eligible cost) as regards **cost-benefit**, environmental impact and state aid conformity before the implementation – applies also to research infrastructure projects!
- **JASPERS** (Joint Assistance to Support Projects in European Regions) support available for all MS: independent expert advice and capacity building support to public authorities and final beneficiaries on how to plan, develop and implement **high quality major projects to be co-financed by ERDF**.  
<http://www.jaspers-europa-info.org>



JASPERS also provides training and guidance (<http://www.jaspersnetwork.org>):

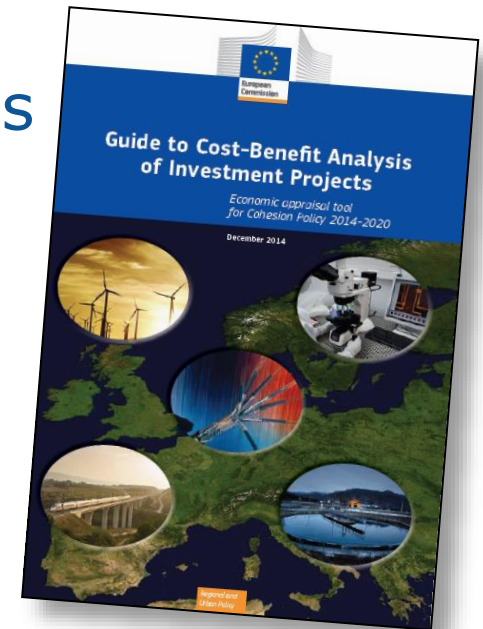
- Implementation of R&D Projects – Recruitment Plan & Staff Development Plan
- Project Preparation and CBA of RDI Infrastructure projects (2013)
- State aid research infrastructure projects (2012)
- ...

# REGIO Guidance for project promoters

## Guide to Cost-Benefit Analysis for projects submitted to ESIF 2014-2020, incl. chapter on research infrastructures

How to assess options against:

- Expected costs
- Expected revenues
- Expected economic benefits, incl. positive and negative externalities
- Possible wider regional effects
- Implementation time
- Degree of uncertainty and the risk involved



[http://ec.europa.eu/regional\\_policy/sources/docgener/studies/pdf/cba\\_guide.pdf](http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/cba_guide.pdf)



# From adopted ERDF OP to implementation: Project selection & Cost-benefit Analysis

1. Operational Programme: sets out programme-based selection approach regarding benefits and impact
2. Cost-benefit Analysis (mandatory for major projects): project-based approach

Aspect	CBA	OP
<b>Time horizon (years)</b>	30	7 (10)
<b>Benefits</b>	All benefits for the society	specific benefits for the OP e.g.: <ul style="list-style-type: none"> <li>- No. of patents;</li> <li>- Value of research undertaken;</li> <li>- R+D employment</li> </ul>
<b>Nature of impact</b>	Variable in terms of time and causality	Tangible impact on growth and jobs expected (also in territorial terms)
<b>Rationale</b>	Is the project worth supporting by the society?	In addition, is the project better than other proposals in the programme?

## 2. State aid rules apply to ERDF

- **Avoiding "economic activities" is a non-option for ERDF research infrastructure projects:**
  - ✓ **But: up to 20%** of activities and capacity can be allocated each year to economic activity without being state aid relevant
- **Investment aid** for research infrastructures (Art.26 GBER):
  - ✓ **Up to EUR 20 million and up to 50% aid intensity:** no need to notify the project to DG COMP
- **Regional aid** for RIs (Art.14 GBER): :
  - ✓ **Condition:** RI has to give transparent and non-discriminatory access to the infrastructure
  - ✓ **Aid intensity up to 70%** - depending on aid classification in the Regional Aid maps
- **For the rest: Notification!**

### 3. Make RIs work for RIS<sup>3</sup> & economic transformation: What MS & regions could do

1. **Prioritise strategic and transformative projects** in their RIS<sup>3</sup>/OP implementation ("*selection criteria*"), e.g. along roadmaps in specific value chains related to RIS<sup>3</sup> priority areas with impact on innovation eco-systems
2. **Overcome fragmentation & duplication for building critical mass:**
  - **More "joint programming"** with other MS and investors and common implementation roadmaps via cooperation along shared value-chains.
  - **Map the complementarities** in their planned thematic RIS<sup>3</sup>/ESIF investments to enable synergies and more targeted support in RIS<sup>3</sup> priority areas

## Questions and Answers



## For more information:

*Cohesion Policy:*

[http://ec.europa.eu/regional\\_policy/index\\_en.cfm](http://ec.europa.eu/regional_policy/index_en.cfm)

*Research & innovation in Cohesion Policy:*

[http://ec.europa.eu/regional\\_policy/en/policy/themes/research-innovation/](http://ec.europa.eu/regional_policy/en/policy/themes/research-innovation/)

*Smart Specialisation Strategies*

<http://s3platform.jrc.ec.europa.eu>

# Thematic guides

Relevant for design of policy mix and implementation tools

*Available in PDF format here:*

<http://s3platform.jrc.ec.europa.eu/guides>

- ☐ RIS3 guide
- ☐ Universities & regional development
- ☐ Service innovation
- ☐ Creative industries
- ☐ Social innovation
- ☐ How to convert research into commercial success
- ☐ Science and Technology Parks
- ☐ Public procurement of innovation
- ☐ Synergies between ESIF, Horizon2020 and other EU programmes
- ☐ SME innovation
- ☐ Incubators
- ☐ Connecting Smart and Sustainable Growth through Smart Specialisation
- ☐ Guide to Multi-Benefit Cohesion Policy Investments in Nature and Green Infrastructure
- ☐ Driving energy efficient innovation through procurement
- ☐ Entrepreneurial mind-set
- ☐ SME internationalisation
- ☐ Digital growth

