

The ENEA logo features the word "ENEA" in a bold, white, sans-serif font. To the left of the text is a stylized graphic of a sun or starburst with rays emanating from it, set against a dark blue background with a grid pattern.

ITALIAN NATIONAL AGENCY
FOR NEW TECHNOLOGIES, ENERGY AND
SUSTAINABLE ECONOMIC DEVELOPMENT

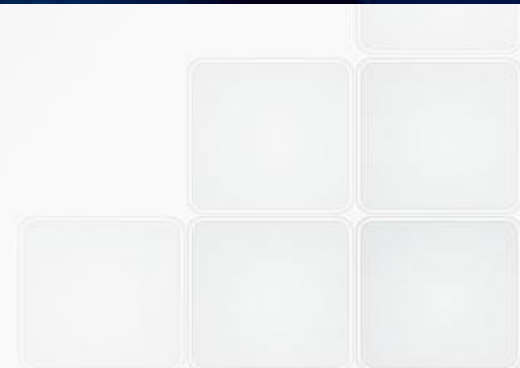
EU Reserach policy towards Horizon 2020

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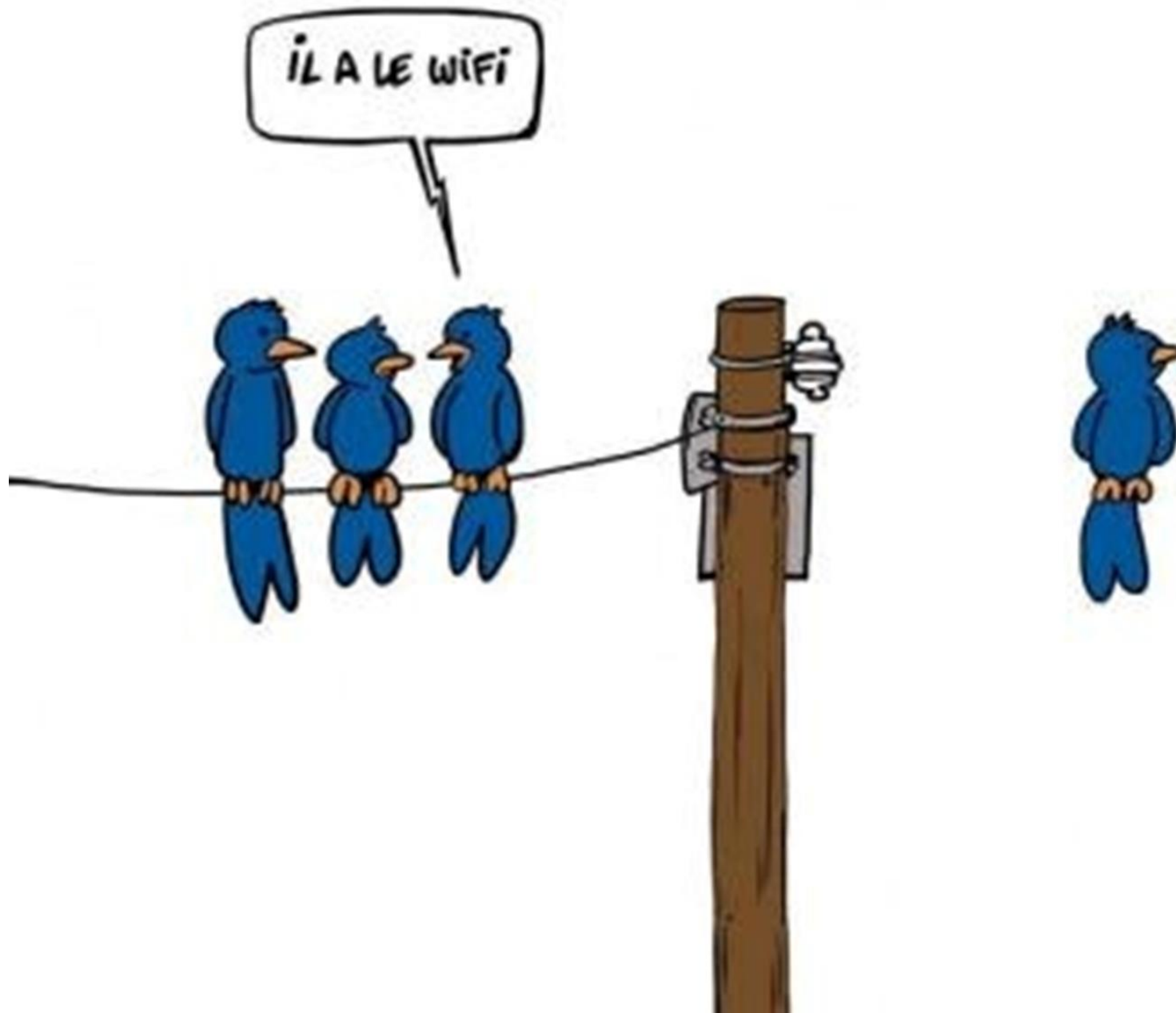
COST Action TD1105: EuNetAir 1° Scientific Meeting
ENEA, Rome, 04 dicembre 2012



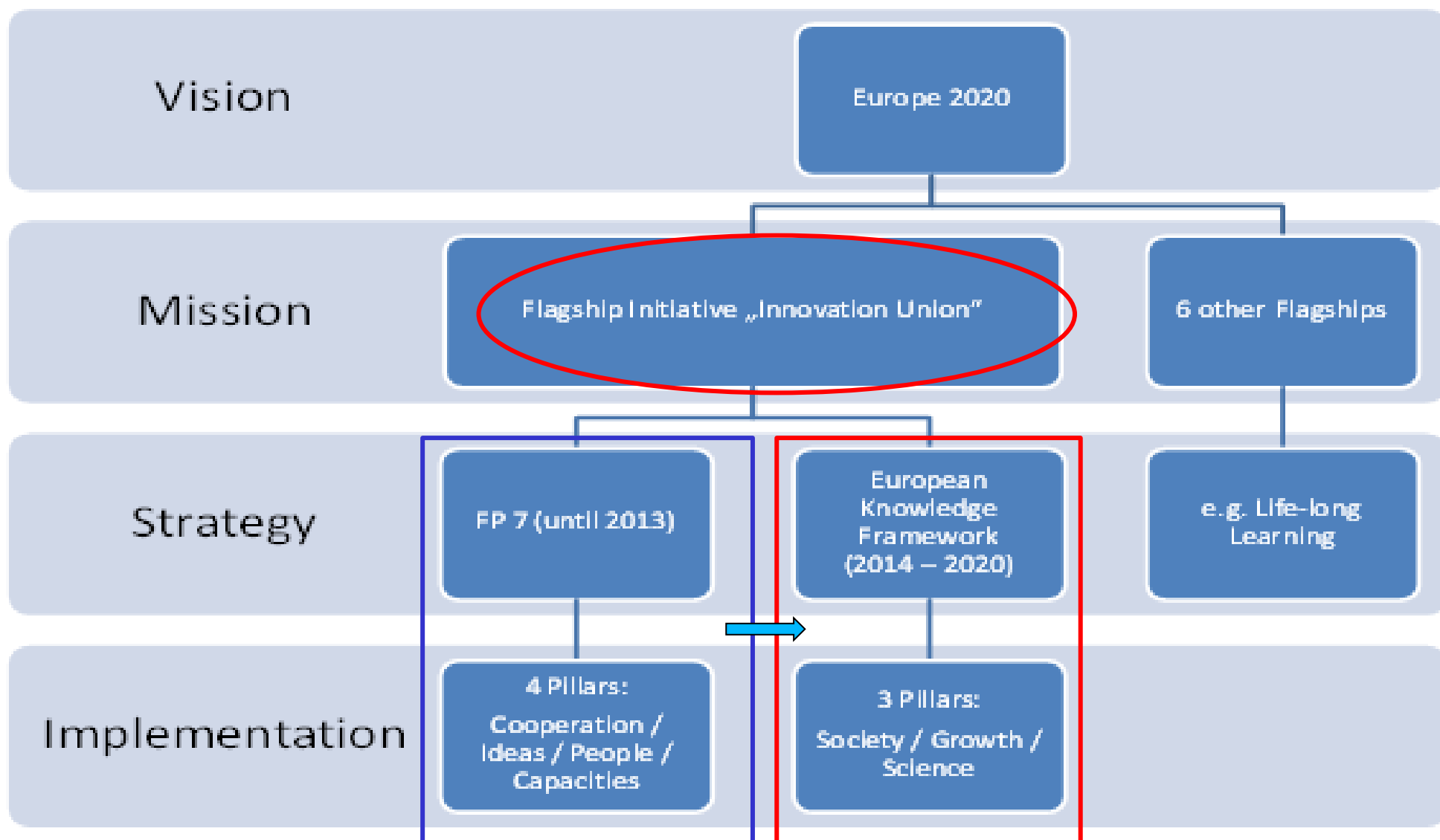
EU R&I funding programmes



Innovation...?



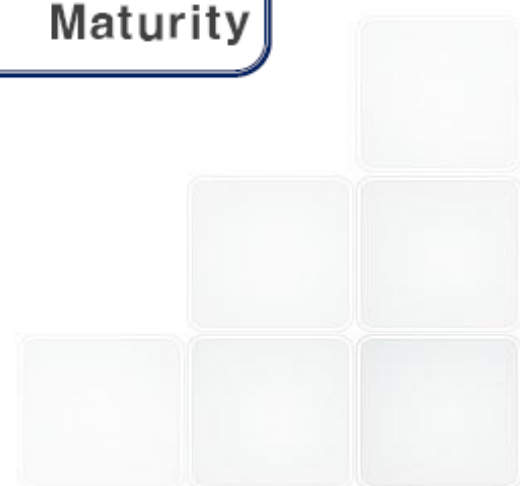
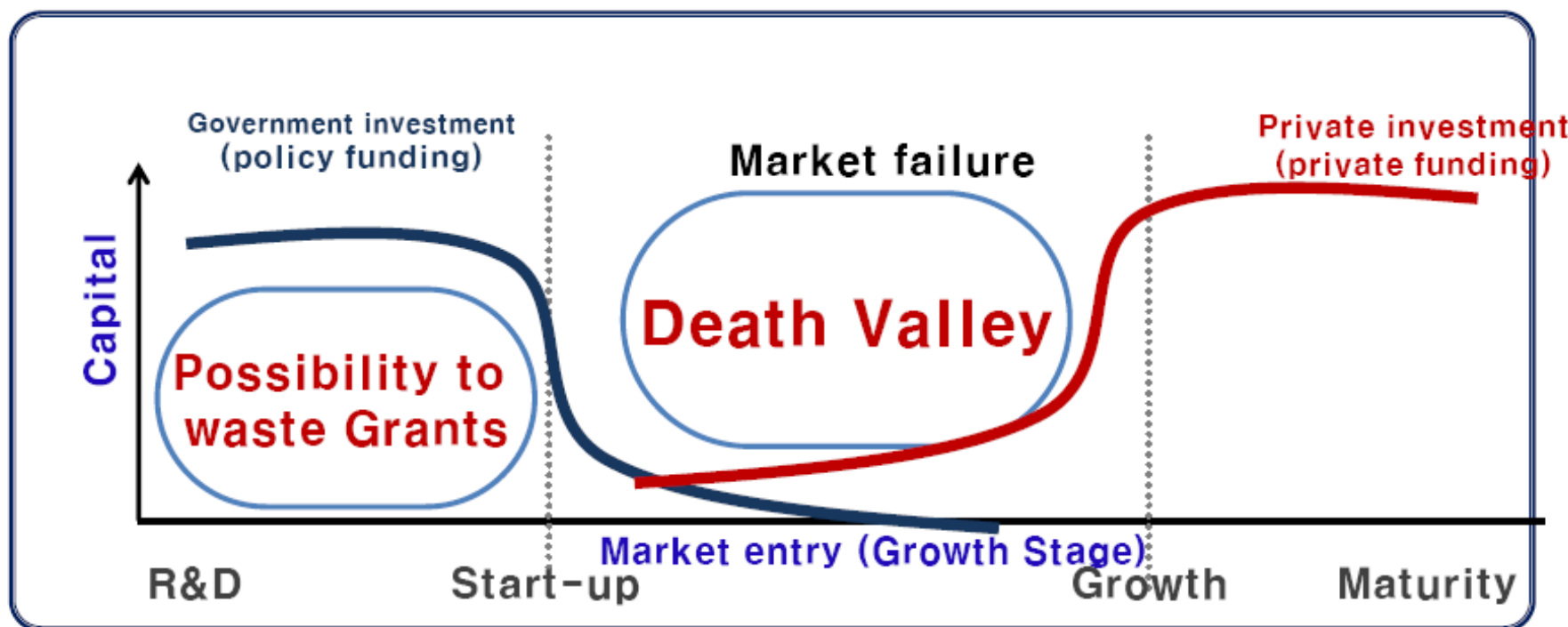
From FP7 towards Horizon 2020



To have a major **IMPACT**

- **FROM** different priorities in each programme and initiative
➔ **TO common** strategic priorities focused on great societal challenges, competitiveness and excellence in R&I.
- **FROM** fragmentation of different phases (research, development, demonstration, prototyping, piloting, scale-up, market replication, etc.)
➔ **TO** coherent support to project and organizations along the **entire innovation cycle** (from research to commercialization)
- **FROM** research results that often are not used and/or focused on technologies
➔ **TO strong support to innovation**, including non-technological innovations and commercialization

Innovation Death valley

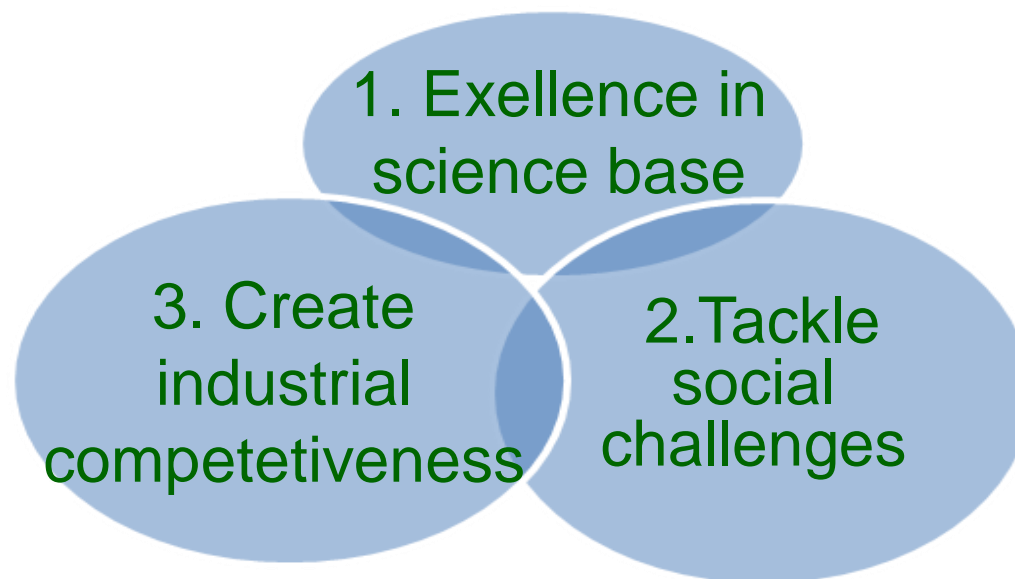


Horizon 2020: budget & characteristics



87,74 billion €, Commission proposal for UE research and innovation funding programme (2014-2020)

Horizon 2020: FP, CIP e EIT under a unique coordination mechanism and a set of common rules, divided in three priorities



Clear complementarity/sinergy with SF and the Cohesion Policy of the UE (376 mld € / 2014-2020)

The Structure of Horizon 2020

EXCELLENT SCIENCE

ERC

Future and
Emerging
Technologies

Marie Curie
actions

European
research
infrastructures
(including e-
infrastructures)

INDUSTRIAL LEADERSHIP

Leadership in
enabling and
industrial
technologies

Access to risk
finance

Innovation in
SMEs

SOCIETAL CHALLENGES

Health, demographic
change and wellbeing

Food security, sustainable
agriculture, marine and
maritime research and the
bio-economy

Secure, clean and efficient
energy

Smart, green and
integrated transport

Climate action, resources
efficiency and raw material

Inclusive, innovative and
secure societies

EIT & JRC

Structure (simplified...)

EXCELLENT SCIENCE

Frontier research

ERC

Autonomous Scientific Councils

Starting & Advanced grants, Research Infrastructures

INDUSTRIAL LEADERSHIP

Competitiveness

ETP, EIB

EU

PPP, proof of concept, pre-commercial procurements, JTI, CIP, RSFF....

SOCIETAL CHALLENGES

Global Challenges

EIP, EIT, JRC

Partnerships UE & SM & Regions

KIC, JPI, ERA-Net (+), Art. 185, EIP, Thematic priority.....

Smart Specialization, Knowledge Transfer & IPR, International Cooperation

Rationale

Policy concept

Political responsibility

Instruments

Cross cutting

H2020: Budget breakdown (M EUR)

- non definitivo



EXCELLENT SCIENCE		27.818
1. The European research and innovation programme	<p>Includes</p> <p>8.975 for ICT of which:</p> <p>1.795 for photonics and micro-nanoelectronics</p> <p>4.293 for nanotechnologies, advanced material and advanced manufacturing and processing</p> <p>575 for biotechnology</p> <p>1.737 for space</p>	15.008
2. Future and Emerging Technologies		3.505
3. Marie Curie actions		6.503
4. European research infrastructure		2.802
INDUSTRIAL LEADERSHIP		20.280
1. Leadership in enabling and industrial technologies		15.580 dei quali 500 per EIT*
2. Access to risk finance		4.000
3. Innovation in SMEs		700
SOCIETAL CHALLENGES		35.888
1. Health, demographic change and ageing	<p>About 1.131 could go to the implementation of the SET Plan</p> <p>About 1/3 could go to PMI</p>	9.077 dei quali 292 per EIT*
2. Food security, sustainable agriculture and bio-economy		4.694 dei quali 150 per EIT*
3. Secure, clean and efficient energy		6.537 dei quali 210 per EIT*
4. Smart, green and integrated transport		7.690 dei quali 247 per EIT*
5. Climate action, resources efficiency and raw material		3.573 dei quali 115 per EIT*
6. Inclusive, innovative and secure societies		4.317 dei quali 136 per EIT*
European Institute of Innovation and Technology (EIT)		1.542 + 1.652*
Non-nuclear direct actions of the Joint Research Centre		2.212
	TOTAL	87.740



- **Principle of excellence:** continue to allocate funding on the basis of competitive calls, selecting only the best projects.
- **Clear division of labour** between cohesion policy and Horizon 2020.
 - Cohesion policy: support for regions in building up their research and innovation capacity.
 - Horizon 2020: widen participation, better coordination between the two Union funding programmes, support policy learning reforms.
- **Accompanying measures in Horizon 2020** to ensure that excellence prevails wherever it exists, including: twinning, ERA chairs, support for access to international networks, development of **smart specialisation strategies**.

Public private partnerships:

- **JTI («institutional» PPP)** or other formal structures (**Art. 187**)
- **PPP («contractual» PPP)**, which provide inputs for ai work programmes
- Only when criteria met, e.g. clear commitments from private partners

Public public partnerships:

- **ERA-Nets** for topping up individual calls/actions (replacing current ERA-Net, ERA.Net +, Inco-Net, Inno-Net)
- Through participation in **joint programmes between Member States (Art. 185:** e.j. EDCTP, EMPR, AAL, Eurostars))
- supporting agendas of **JPI** when in line with Horizon 2020
- only when i criteria met, e.g. financial commitments of participating countries

European Innovation Partnerships (EIP):

- **Non funging instrumens**, but for coordination with broader policies and programmes

Public Private Partnerships



Joint Technology Initiatives

- Innovative Medicines Initiative (IMI)
- Clean Sky
- Single European Safety ATM Research (SESAR)
- Fuel Cell and Hydrogen (FCH)
- Embedded Computing Systems (ARTEMIS)
- Nanoelectronics (EN IAC)

Contractual PPPs

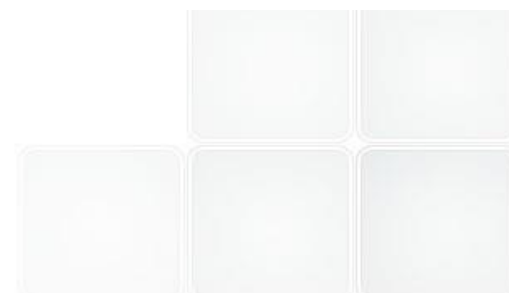
- Factory of the Future (FoF)
- Energy Efficient Buildings (EeB)
- Green Car (GC)
- Future internet (FI-PPP)



Participation SME in the JTIs

	Nr of Signed GAs	Nr of SMEs Participations	Number of ALL Participations	% of SME Participations	Average Size of Consortia	Average Nr of SMEs
FCH	85	163	725	22,5%	8,5	1,9
CS	252	182	474	38,4%	1,9	0,7
IMI	30	66	508	13,0%	16,9	2,2
ARTEMIS	44	263	941	27,9%	21,4	6,0
ENIAC JU	40	202	823	24,5%	20,6	5,1
JTIs	451	876	3471	25,24%	7,7	1,9

Source: CORDA for HFC and Clean SKY; data provided by the JTI management for IMI, ENIAC and ARTEMIS



Indicative contributions to contractual PPP FP7 research budget (2010 – 2013)



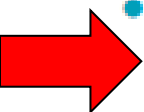
Budgets (MC)	NMP	INFISO	TRANS-PORT	ENERGY	ENV	TOTAL FP7	TOTAL PPP
Factories of the future	400	200 +45				600 +45	1,200
Energy-efficient Buildings	250	100 +5		125	25	500 +5	1,000
Green Cars	60	120	220	50	50	500	1,000
TOTAL	710	420 +50	220	175	75	1,600 +50	3,200

Increased industry participation: >50%, SMEs ~23% (~30% in FoF)

Timetable envisaged for cPPP (FoF, EeB, GC and SPIRE)



- Updated versions of the Multi-annual Roadmaps expected to be put on shorter open validation exercise on 15 November for two weeks
- Next meetings of the AIAGs in week 49 (beginning of December) in order to revise the final version of the Multi-annual Roadmaps and to discuss future priorities (e.g. first calls in Horizon2020)
- High level meeting with EC services with the high industrial representatives of the Cross-thematic PPPs (FoF, EeB, SPIRE and GC) scheduled on 19 December.
- Final FoF, EeB and SPIRE PPP Multi-annual Roadmaps by the end of 2012.
- Further Workshops on the Impact of FoF and EeB PPP projects in March 2013
- Aiming at being ready for the start of Horizon 2020



- PPPs are specifically addressed in Article 19
- To implement R+I activities of strategic importance
- Based on **Article 187 TFEU** or on a **Contractual agreement**
- Identified in an open way based on five specific criteria
- Envisaged cross-thematic Contractual PPPs in the Specific Programme text (Partnering) including the three in the Recovery Plan (FoF, EeB and GC) plus Sustainable process industry (SPIRE), Robotics, Photonics, Bio-based industries and Security Technologies for Maritime Border Surveillance.

Public Public Partnerships (and societal challenges)



■ Joint Programming Initiatives (JPI)



EXISTING

- Neurodegenerative diseases/Alzheimer's
- Agriculture, Food Security and Climate Change (FACCE) – UK, FR
- Healthy diet for a healthy life - NL
- Cultural Heritage & Global Change - IT
- Ageing (More years, better life) - DE
- **Water challenges for a changing world** - ES
- Healthy and productive seas and oceans (Oceans) – NO, ES, BE
- **Climate change** (Clik'EU) – DE
- Antimicrobial resistance (AMR) – IT, Svezia
- Urban Europe – AU, NL

■ European Innovation Partnerships (EIP)

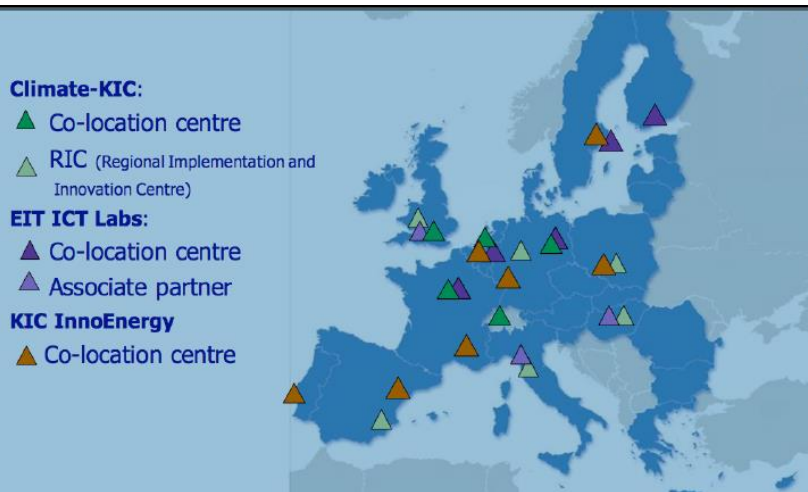
NEW

- Active and Healthy Ageing
- **Raw Materials**
- **Water Efficient Europe**
- Agricultural Productivity and Sustainability
- **Smart Cities**
- Smart mobility

Others partnerships



■ Knowledge and Innovation Communities (KICs)



- Energy
- **Climate**
- ICT

ACTUAL

- Human Life and Health
- Food4Future
- Raw material

2014 (?)

- Manufacturing by and for Creative Human Beings
- Security and Safety
- Urban mobility and Smart Cities

2018 (?)

■ PPPs

- 3 PPPs
- 5 JTIs
- Other news JTI (Bio-based industries, SESAR, SPIRE)
o PPP (**Robotics**, Photonics, Security Technologies for Maritime Border Surveillance)

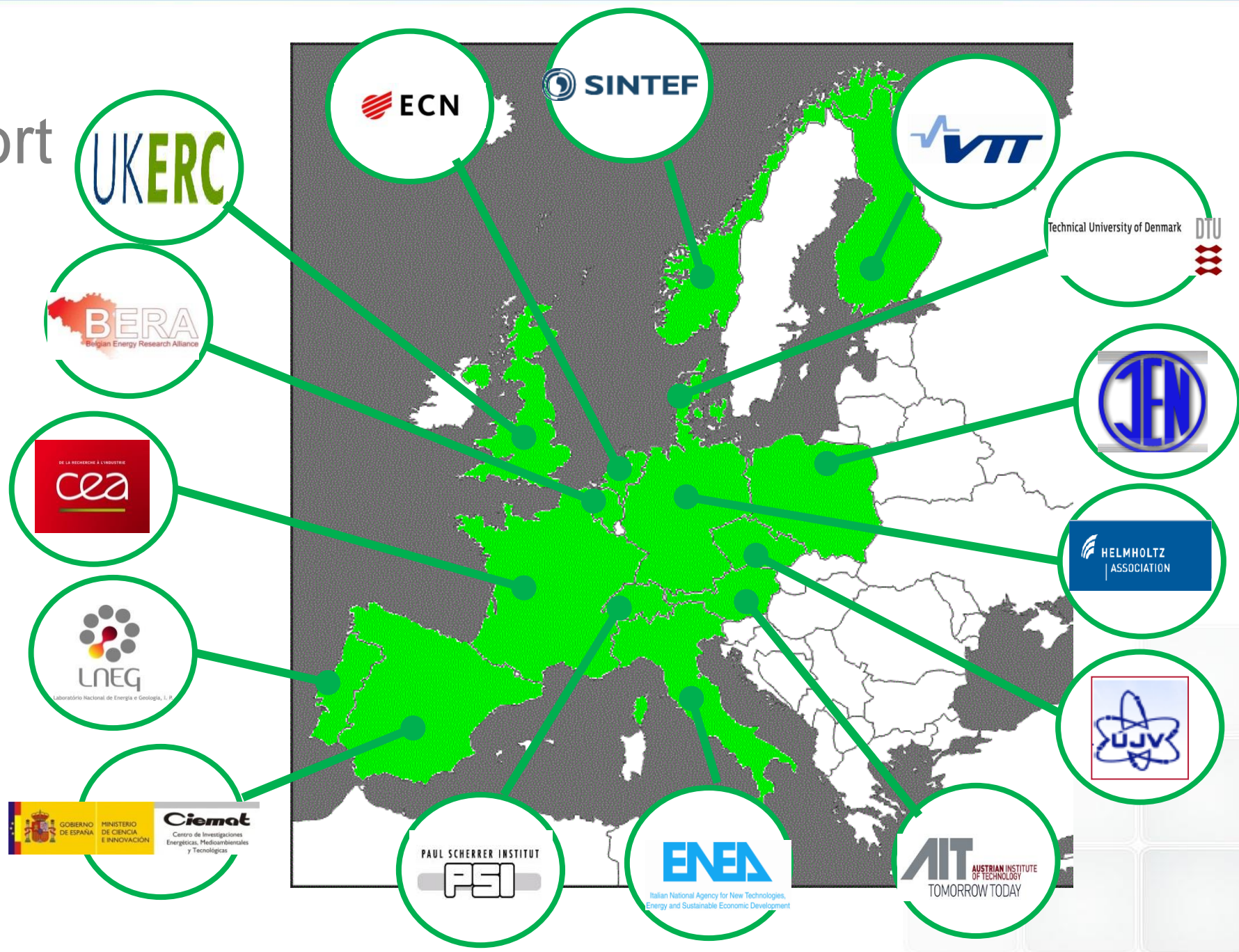
■ ALLIANCES

- EERA
- ECRA

EERA: European Energy Research Alliance



Supported
by:



Cooperation of Energy Research Organisations

■ *More than 150 participating organisations*

Responsible for EERA Joint Programmes

- About 2700 professionals full time equivalent -> make it happen (**in kind contribution of roughly ~ 400M €**)
- In principle open to all research organisations
- Participation is based on own resources
- Between industry driven and fundamental research
- About 10% of the participants are going to be from industry

■ *15 Partners*

- Responsible for EERA (Culture and governance)
- Launch and review of EERA **Joint Programmes**

EERA Joint Programmes

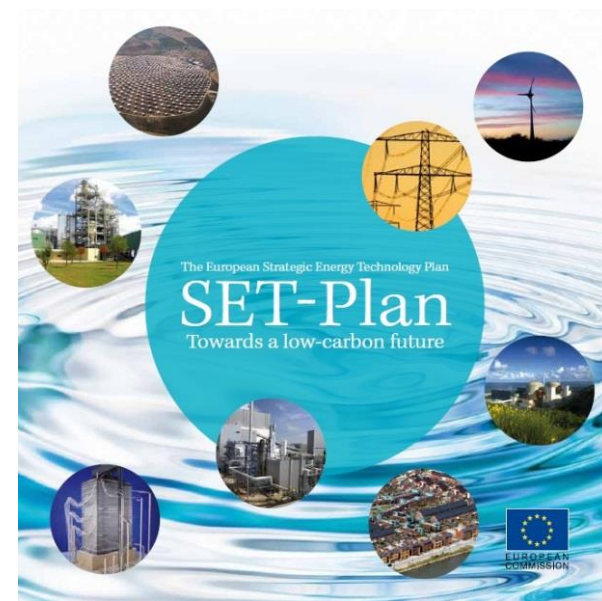


Joint Programmes launched

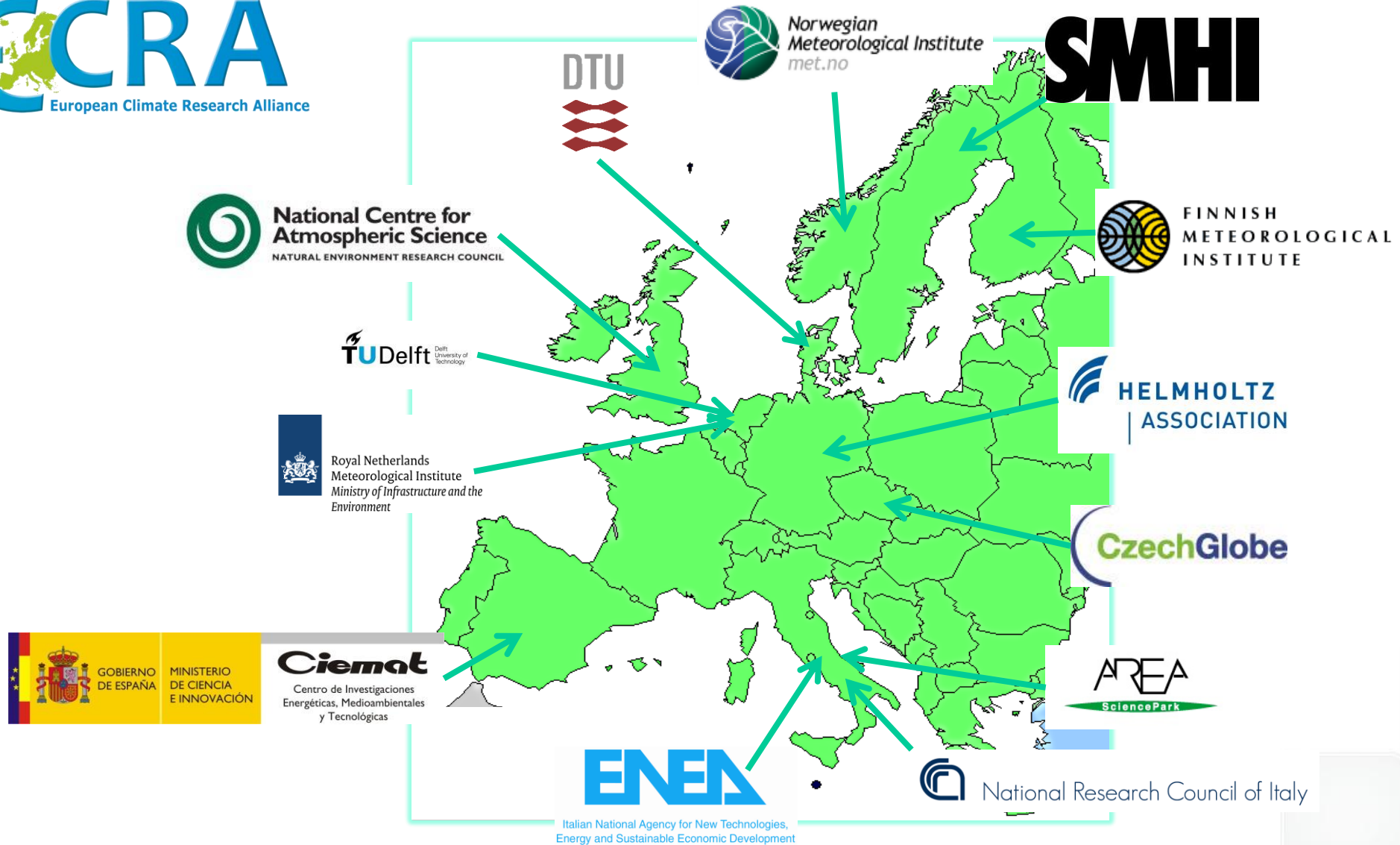
CSP:	≈ 106 professionals*
Ocean Energy:	≈ 35 professionals*
AMPEA:	≈ 427 professionals*
FC&H2	≈ 132 professionals*
Energy Storage	≈ 407 professionals*
Smart Cities	≈ 193 professionals*
PV:	≈ 141 professionals*
Wind:	≈ 190 professionals*
Geothermal:	≈ 354 professionals*
Smart Grids:	≈ 100 professionals*
Bioenergy:	≈ 187 professionals*
CCS:	≈ 280 professionals*
Mat. Nucl.:	≈ 150 professionals*

Participation increasing
New organisations joining

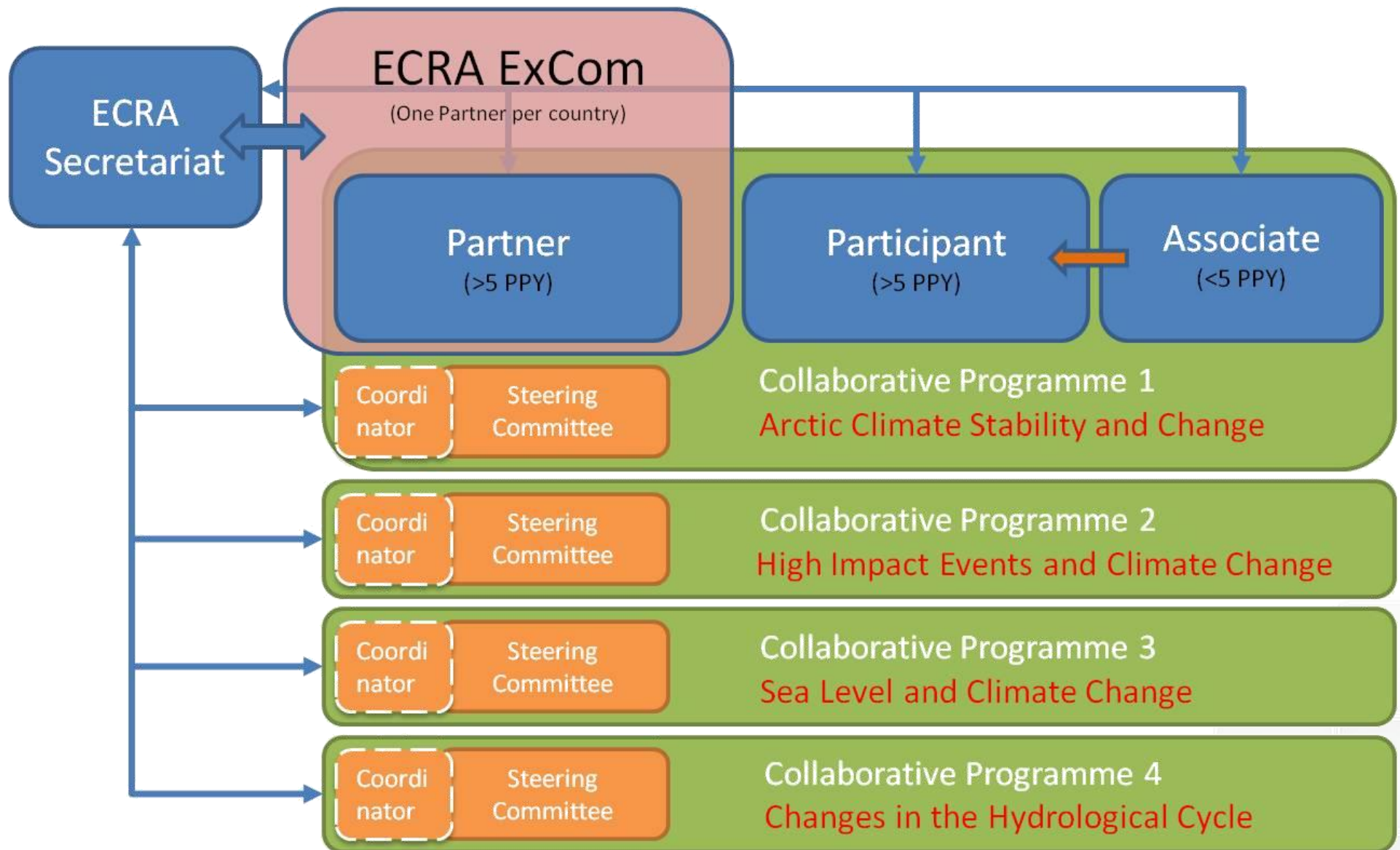
* Full time Equivalent



ECRA: European Climate Research Alliance



Governance and Collaborative Joint Programme (CJP)



PPY: Professional Person Year



1) Public procurements:

of strategic importance for innovation.

Two options :

- **Pre-commercial procurements:** to support investments in projects or products that do not have yet access to the market.
- **"First commercial« procurements”:** for innovative solutions ready to be introduced to the market.

2) Premium:

Premium of induction

- for the achievement of a result/objective. Awarded after the achievement

Premium after obtaining a result

- Awarded for a specific result achieved in the past.

3) **SME instrument:**

Characteristics

- Under «social challenges» and «industrial technologies»
- Only SMEs allowed to apply for funding
- Competitive, market oriented, EU dimension
- Bottom-up
- Single company support possible (without cooperation with other MS)

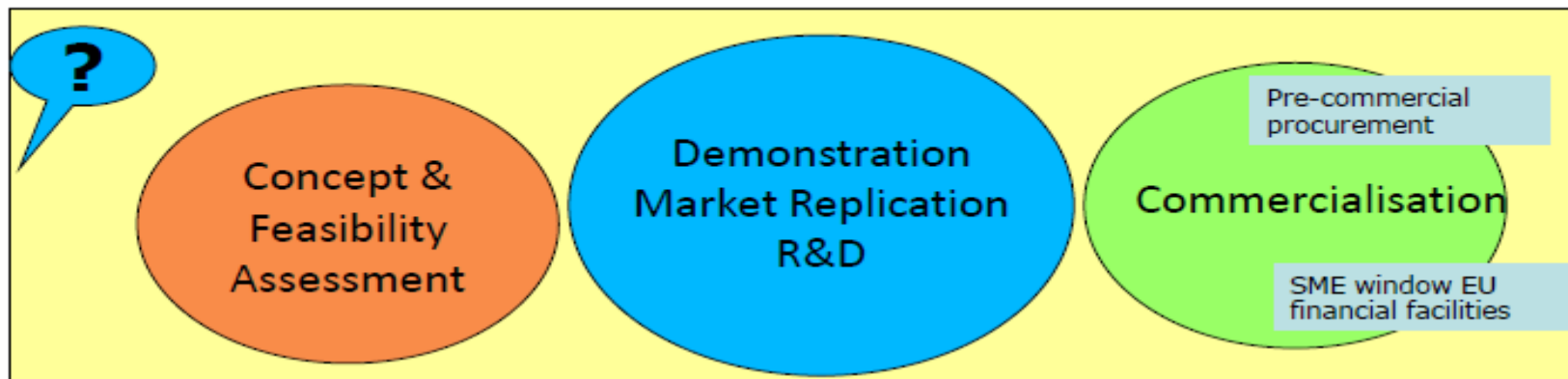
Structure

3 phases:

- 1) *Concept and Feasibility Assessment*
- 2) *Innovation Activities*
- 3) *Commercialisation*

Quality label

Strategic options for SMEs R&D projects in H2020



Idea to concept, risk assessment, technological & commercial feasibility

Demonstration, prototyping, testing, market replication, scaling up, miniaturisation, research

Quality label for successful projects, access to risk finance, indirect support

IDEA

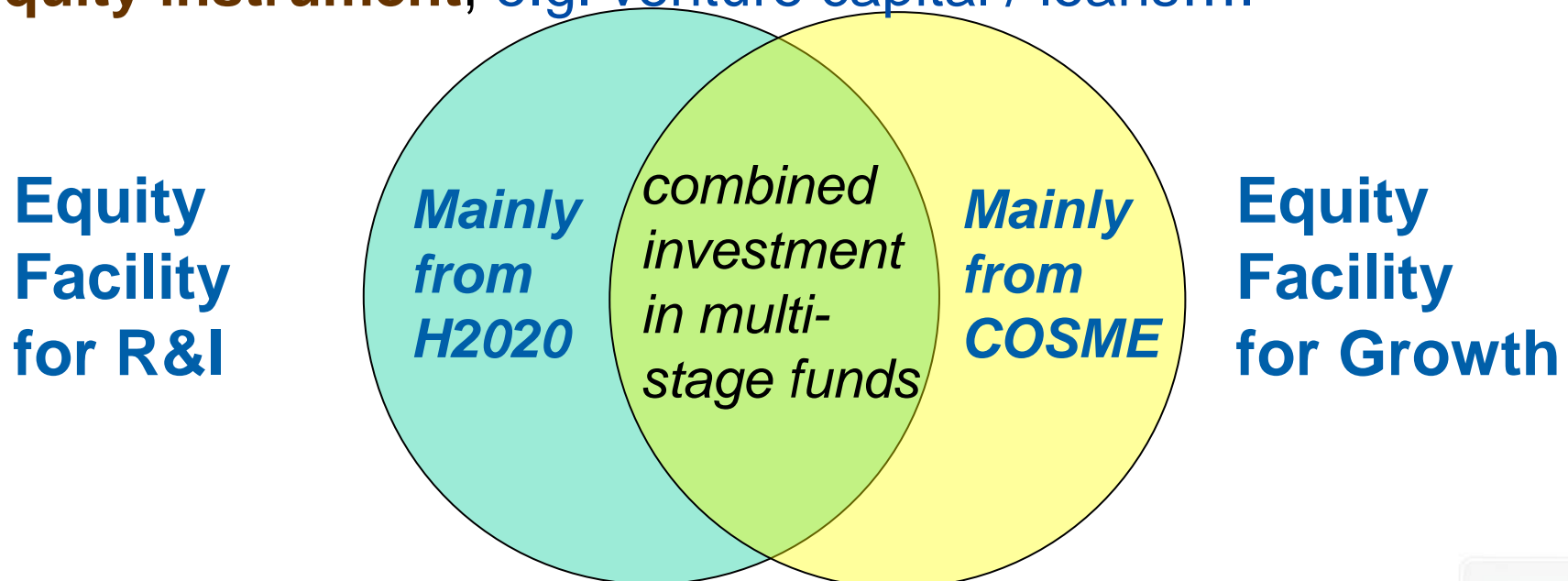
continued support throughout the project

MARKET

4) Access to financing

Two main instruments.

- **Debt instrument**, for SMEs & Small Midcaps Guarantee Facility for R&I (guarantees for loans over € 150 000* for R&I activities)
- **Equity instrument**, e.g. venture capital / loans....



from start-up/early stage stage \longleftrightarrow to expansion/growth stage

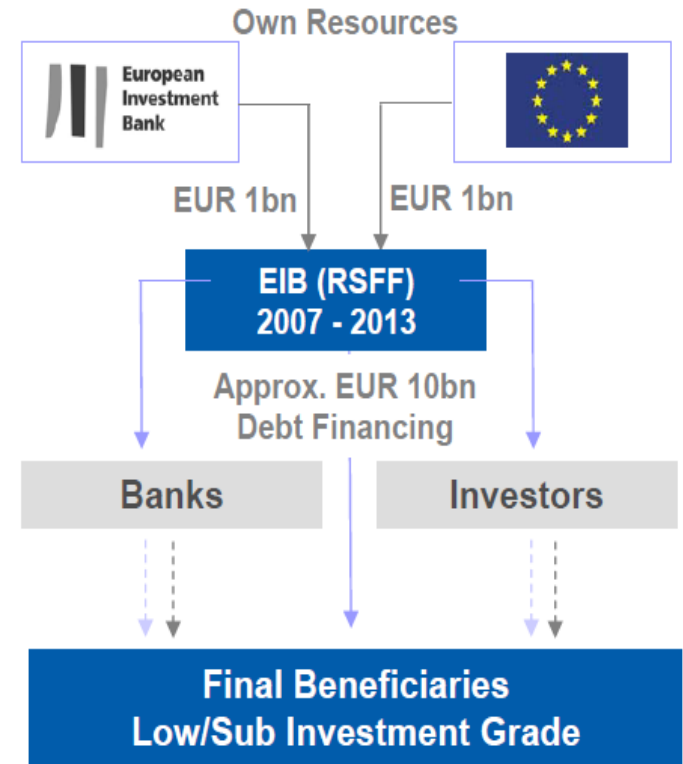
may make growth investments up to 20% of total EU investment

may make early-stage investments 28

Risk Sharing Finance Facility (RSFF)

RSFF is an innovative scheme to improve access to debt financing for private companies or public institutions **promoting activities in the field of RDI.**

RSFF is built on the principle of credit risk sharing between the European Community and the EIB and extends therefore the ability of the Bank to provide loans or guarantees for investment with a higher risk and reward profile. The **RSFF has a EUR 2bn capital cushion**, EUR 1bn from the EIB and the same amount from the Commission's 7th Research Framework Programme (2007-2013), enabling the Bank to lend more than EUR 10bn for this kind of investment. By end 2010, more than 60 loans had been signed for a total of EUR 6.3bn.



RSFF financing is available for promoters and entities of all sizes and ownerships, including corporations, midcaps, small and medium-sized enterprises, special purpose companies, public-private partnerships and joint ventures, research institutes, universities and science and technology parks.

Over € 7.4 billion in EIB loans to 75 companies so far (signed projects)

Innovation dimension in WP2012 & 2013



Crisis: to innovate as a major way out of the crisis

Horizon 2020: reinforced messages on innovation

- broad approach (incl. design, service and social innov.)
- mkt take up through pilot, demo, standards, public proc
- bottom-up, bridging, cross-cutting
- bottom up, bridging, cross-cutting

Past experience: learn from and build on WP2012 innovation-related actions and approaches

Better timing: support to innovation dimension much earlier in the process

-> Rebalancing activities towards innovation:

Measures supporting the uptake and exploitation of the fruits of research: activities such as demonstrators, prototyping, proof of concept, validation, testing, experimental development, piloting (including in industrial settings)

HOW?

- + Adding up an innovation phase within R&D projects by referring to it in the **topic description** (as 'voluntary' or 'mandatory') and adapting the budget accordingly
- ++ Adding up an 'innovation phase' within the R&D projects indicating a **target amount of budget** to be allocated to the innovation-related activities
- ++ Supporting the '**innovation phase**' as a standalone action

EXAMPLES IN WP2012:

- large scale integrated projects (in NMP, Security), mandatory demonstration (KBBE)
- demo-targeted projects with target budget (in NMP)
- testing validation and demonstration of feasibility of R&D EU funded projects results (KBBE, ENV, Transport, SME programme)

WHY? SMEs are major drivers of innovation and industry participation may guarantee the exploitation and market take up of research results

HOW?

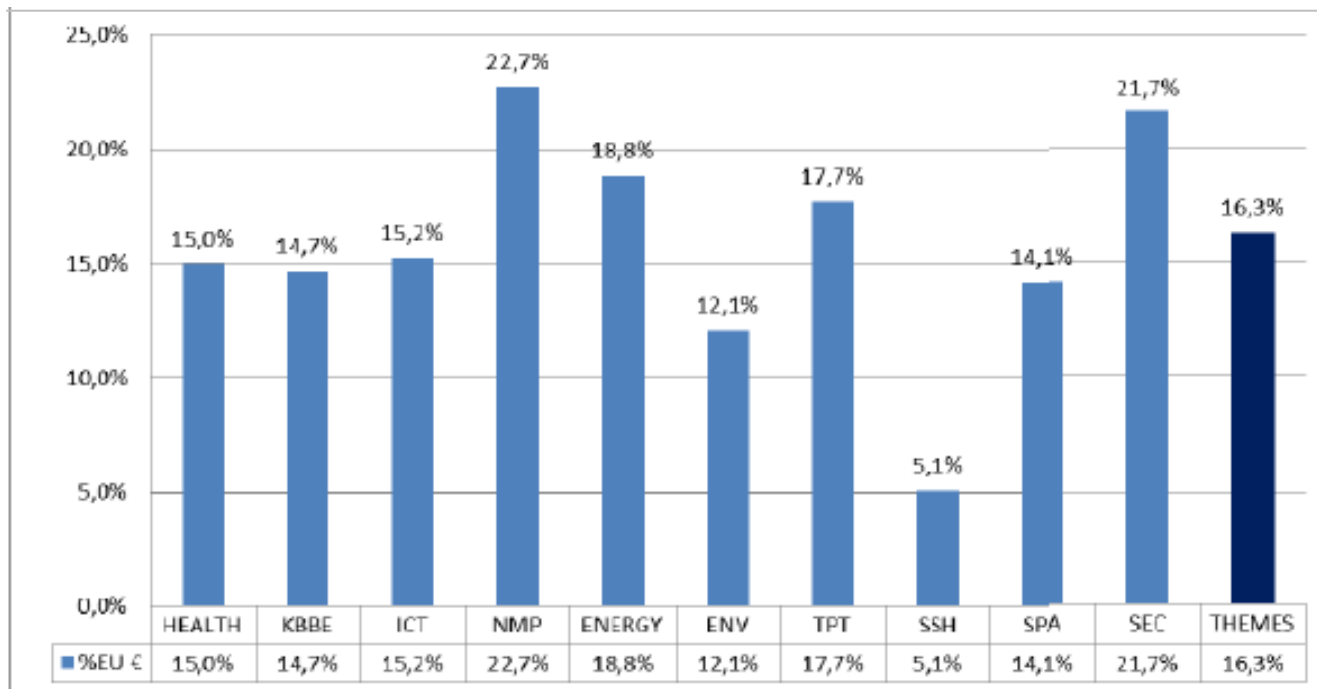
- + designing industry-friendly topics
- ++ encouraging industry participation (topic description)
- +++ industry participation as an evaluation criteria
- ++++ industry participation or leadership made compulsory
- +++++ minimum budget to go for industry
- ++++++

EXAMPLES IN WP2012:

- pilot on a specific SME support scheme (in Health)
- topics with ring-fenced budget for industry and SMEs (in NMP)
- SME demonstration-targeted projects (in NMP, SME programme)

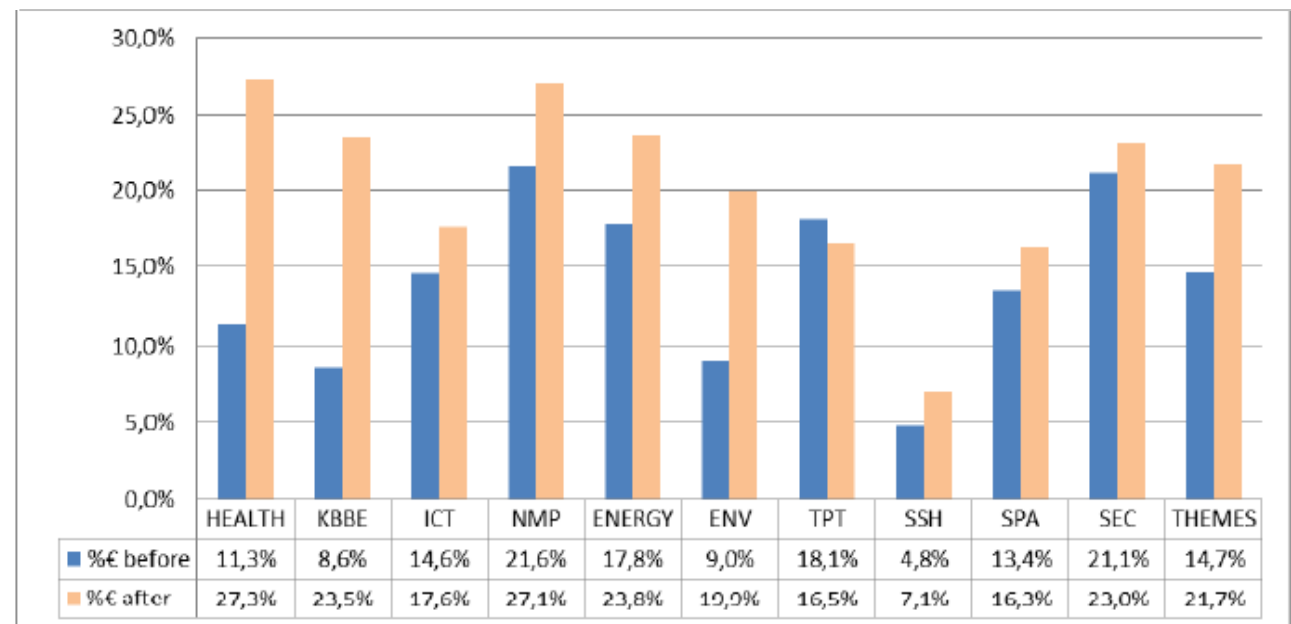
%SME share on EU contribution

(30 Settembre 2012)



%SME share on EU Contribution, 2007-2012

%EU Contribution before and after WP2011-WP2012



R&I's initiatives foreseen for adoption in 2013



- ★ *A single package "Proposals for reinforced partnering in research and innovation under Horizon 2020" – foreseen adoption 3Q 2013*
- 10 legislative proposals: **6 Public - Private Partnerships**(Art.187 TFEU) & **4 Public - Public Partnerships**(Art.185 TFEU)
- ★ Commission Recommendation on **Responsible Research and Innovation**
- ★ Commission Recommendation on structural changes in universities & research institutions to promote **gender equality**
- ★ Reporting on the progress of **ERA and the Innovation Union**
- ★ Preparation for the **implementation** of Horizon2020
- ★ Commission Communication on **Internationalisation of Higher Education** (CWP) (EAC initiative)
- ★ Commission Communication on **Opening up Education** (Catalogue) (EAC initiative)

Thank you for the attention

BRAND CAMP

by Tom Fishburne

