



# HORIZON 2020

## Joint Technology Initiative Joint Undertakings



Anna Sibilla

DG RTD – Unit R4 New Management Modes

## Unit R4 - *New Management Modes* - mission

*The Unit ensures the effectiveness and coherence of the DG's delegation of programme implementation to Executive Agencies (EAs) and Joint Undertakings (JUs). The Unit acts as the central reference point for comparisons across R&I implementing bodies for matters such as resource efficiency and governance.*

### **Joint Undertakings TEAM**

*ensures the  
coherence between  
the different JUs*

### **Executive Agencies TEAM**

*steers the governance  
and administration of  
EAs, and manages the  
subsidies for their  
functioning*

**HoU: Priscila Fernandez-Cañadas**

## JTI JUs in FP7

**JTI JUs = Public-Private  
Partnerships**

**Building on FP7 experience – first  
results**

# JTI vs JU

**PPP  
between the  
Commission  
and Industry**

**Joint Technology Initiatives  
JTIs**

are **the instruments**  
established in the Framework  
Programme 7 and extended  
under Horizon 2020. The  
initiatives have been created to  
implement industry-driven  
research

**Joint Undertakings  
JUs**

are the legal entities (**EU bodies**)  
set up to **implement** the JTI

**Art 187 TFEU**

*What are  
Public  
Private  
Partnerships?*

IMI2  
CS2  
FCH2  
BBI  
S2R

ECSEL  
SESAR (JU)

**Member States**

**EU**

**Industry**

**JOINT TECHNOLOGY INITIATIVE**

(Joint Undertaking)

Research agenda driven by industry

Common objectives

Joint implementation

**Activities**  
open and transparent

**IMPACT**  
competitiveness, growth, jobs, social benefits

## JTIs established in the FP7

- Built on **European Technology Platforms**
- First experience with setting up long-term public-private partnerships in research at EU level
- Coordinate research efforts responding to industry needs
- Focus on fields of high industrial relevance, on key areas where research could contribute to Europe's competitiveness goals
- Implemented through new legal entities - Joint Undertakings



JUs established as EU bodies under Article 187 of the TFEU

## JTI JUs already delivered in FP7

- **Achievements** against objectives
- **Increased industrial participation**
- **Increased SMEs** participation
- First track records of **success stories**

**Two Interim  
Evaluations and  
continuous  
monitoring &  
coordination**

- **Fact sheets** highlight achievements and success stories for Clean Sky, FCH, IMI, Artemis and Eniac

## Second Interim Evaluation Reports

JTI JUs confirm that PPPs are a successful cooperation model to **address in a pre-competitive way R&I challenges** in specific technologies;

JTI JUs are capable of **creating and maintaining strong communities** across industry, research organisations and academia;

They create a **critical mass of expertise** to address the most complex problems and deliver high-quality scientific output.



## JTI JUs calls implementation in FP7

### On yearly basis (\*):

Participants involved in calls preparation and submission: **over 2 500**

Participants selected for funding: **over 1 000**

Aggregated **success rate**: about **34%**

**Industrial participation**: large companies represented **31.1%** of total participations and SMEs another **30%**

**SMEs** aggregated **success rate**: **44%** (vs. 19% in FP7 Cooperation Specific Programme)

Number of **submitted proposals**: **over 550**

Number of **eligible proposals**: **about 500**

Number of proposals **selected for funding**: **about 150**

Estimated **average success rate in projects**: **35%**

(\*) Source: JTI JUs Annual Progress Report 2012 and AAR 2013 – Information relates to Clean Sky, IMI, FCH, ENIAC, ARTEMIS.



## Participation in signed GAs

*France counts 802 participations in **295 signed Grant Agreements** (GAs), accounting for a EU contribution of about 427,7 million euros*

*From the 802 participations, **164 (20,4%) are SME** participations accounting for a EU financial contribution of about 42,9 million euros (10%)*

*Overall the **French success rates** in JTI JUs' calls is much higher than the overall French FP7 success rates (Cooperation). The French success rates for JTI's in terms of applications is 60% (vs 25,18%) and in terms of EU financial contribution retrieved is 75% (vs 24,73%)*

## **JTI JUs in Horizon 2020**

### **The Innovation Investment Package**

### **Budget, structure and main characteristics**

### **First call – preliminary results**

### **Overview of JTI JUs under Horizon 2020**

# What's in the Innovation Package?

- **Commission Communication** to set the policy scene
- **Total investment: €22 billion**
  - ~ €8 billion from Horizon 2020
  - ~ €10 billion from industry
  - ~ €4 billion from Member States
- **10 legislative proposals**
  - **5 proposals for Public Private Partnerships** (Joint Technology Initiatives under TFEU Article 187)
  - **Extension of SESAR Public Private Partnership** (Joint Undertaking under TFEU Article 187)
  - **4 proposals for Public Public Partnerships** (Joint Programmes with Member States under TFEU Article 185)

# Second generation JTIs: How were they selected in H2020?

- **Criteria in Horizon 2020 legislation** (Horizon 2020, article 19)
  - European added value
  - Impacts
  - Scale and long term nature of industry commitments
  - Openness and transparency
- **Strategic importance**
  - For EU international leadership in the technologies
  - For EU policy objectives under Europe 2020
- **Building on success under FP7**
  - Following evaluations and experience

## What's new compared to FP7?

- **Simplified administration** through alignment with H2020
- H2020 **Common Support Centre** also to assist JUs
- Funding rates same as in rest of H2020
- Introduction of **Additional Activities**
- Stronger **coordination** with **national programmes**
- Discussed and negotiated with Council and Parliament within a **unique Innovation Investment Package**

## Main characteristics of the JUs

- **Governance and bodies:**
  - Governing Board – EC & private partners
  - Executive Director
  - Scientific Committee (advisory)
  - States Representatives Group (advisory)
  - Stakeholder forum (advisory)
  - Public Authorities Board (ECSEL)
  - Private Members Board (ECSEL)
- Multi-annual Implementation Plan and Annual Work Plan
- Annual Activity Report



# JTI JUs BUDGET

(million € for 2014-2020)

Public Private Partnerships	EU (H2020)	Private Partners
Innovative Medicines Initiative 2 (IMI2)	1 638	1 425
Fuel Cells and Hydrogen 2 (FCH2)	665	380
Clean Sky 2 (CS2)	1 755	2 194
Electronic component and systems (ECSEL)	1 185 (+ 1170 from MSs)	1 657
Bio-based Industries (BBI)	975	2 730
Shift2Rail (S2R)	450	470
European ATM system (SESAR)	585	1 000 (incl. Eurocontrol)

## Budget allocated to the JTI JUs in Horizon 2020

Priorities/Parts	Specific Objectives	Activities	PPPs						
			ECSEL	IMI2	CleanSky <sub>2</sub>	FCH2	BBI	S2R	SESAR
Industrial Leadership	Leadership in enabling and industrial technologies	I. ICT	1.151						
		II. Nanoscience & nano technologies							
		III. Advanced materials							
		IV. Advanced manufacturing & pro.							
		V. Biotechnology				146			
		VI. Space Research							
Access to risk finance	I. Debt facility								
	II. Equity facility								
Innovation in SMEs									
Societal Challenges	Health, Demographic Change and Well-being			1.638					
	Food security, sustainable agriculture & forestry, marine & maritime research & inland water research & bio-economy						829		
	Secure, clean and efficient energy					428			
	Smart, green and integrated transport				1.745	238		450	585
	Climate action, environment, resource efficiency and raw materials								
	Europe in a changing world - Inclusive, innovative and reflective societies								
	Secure societies - Protecting freedom and security of Europe and its citizens								

## JTI JUs calls in 2014, first results

JTI JU	call identifier	Launch date	Deadline	Budget (million €)	Proposals received	Below thresholds	Above thresholds	retained for funding
FCH 2	H2020-JTI-FCH-2014-1	9/07/2014	6/11/2014	93	57	34	23	15
	H2020-JTI-FCH-2015-1	5/05/2015	27/08/2015	123				
BBI	H2020-BBI-PPP-2014-1	9/07/2014	15/10/2014	50	40	20	18	10
	H2020-BBI-PPP-2015-1-1	19/05/2015	15/09/2015	100				
IMI2	H2020-JTI-IMI-2014-1	9/07/2014	12/11/2014	49,26	15	4	5	2
	H2020-JTI-IMI-2014-2	6/11/2014	1/12/2014	280	19	6	8	8
	H2020-JTI-IMI-2014-3	17/12/2014	24/03/2015	112,86				
	H2020-JTI-IMI-2014-4	6/11/2014	11/02/2015	2,26	3	2	1	1
CS2	H2020-CS2-CFP01-2014-01	16/12/2014	31/03/2015	47,96	220			
ECSEL	ECSEL-2014-1	9/07/2014	17/09/2014	80 (40 from EU)	34	7	27	6
	ECSEL-2014-2	9/07/2014	17/09/2014	190 (95 from EU)	14	2	12	6
ECSEL	H2020-ECSEL-2015-1-RIA- two-stage	17/03/2015	8/09/2015	50				
	H2020-ECSEL-2015-2-IA- two-stage	17/03/2015	8/09/2015	95				
<b>total in 2014</b>				<b>905,68</b>	<b>402</b>	<b>75</b>	<b>94</b>	<b>48</b>

# JTI JUs calls (\*) in 2014, first results

(\*) calls for Associated Partners & Core Partners

JTI JU	Launch date		Deadline		Budget (million €)	Contracts (planned date of signature)
CS2	9/07/2014		5/11/2014		203	(First 26 GAM under finalisation) 2nd semester 2015
CS2	16/04/2015		30/07/2015		91,5	1st semester 2016
S2R	1st stage	6/10/2014	1st stage	12/11/2014	135	3rd quarter 2015
	2nd stage	1/02/2015	2nd stage	On-going		

# Innovative Medicines Initiative 2 (IMI2)

## Rationale

- The **pharmaceutical industry** is important for Europe's growth and competitiveness
  - ✓ €157 billion annual turnover
  - ✓ 660,000 people employed (including 110,000 researchers)
- Important challenges for the development of **new** and **effective treatments**.
- A **mismatch** between public health needs (e.g. treatments for Alzheimer's) and where industry invests (many 'me-too drugs').
- The development of diagnostics and treatments is **complex, expensive** and **risky** (*market failures*).
- **EU participation** adds value by providing **sustained, long-term, large-scale public support** able to facilitate cross-border, cross-sector and interdisciplinary research and innovation consensus-building.

## IMI2 General objectives

- Provide citizens with timely access to new and effective diagnostics and treatments that improve their health and wellbeing.
- Help safeguard the future international competitiveness of the European biopharmaceutical industry and secure growth and jobs.

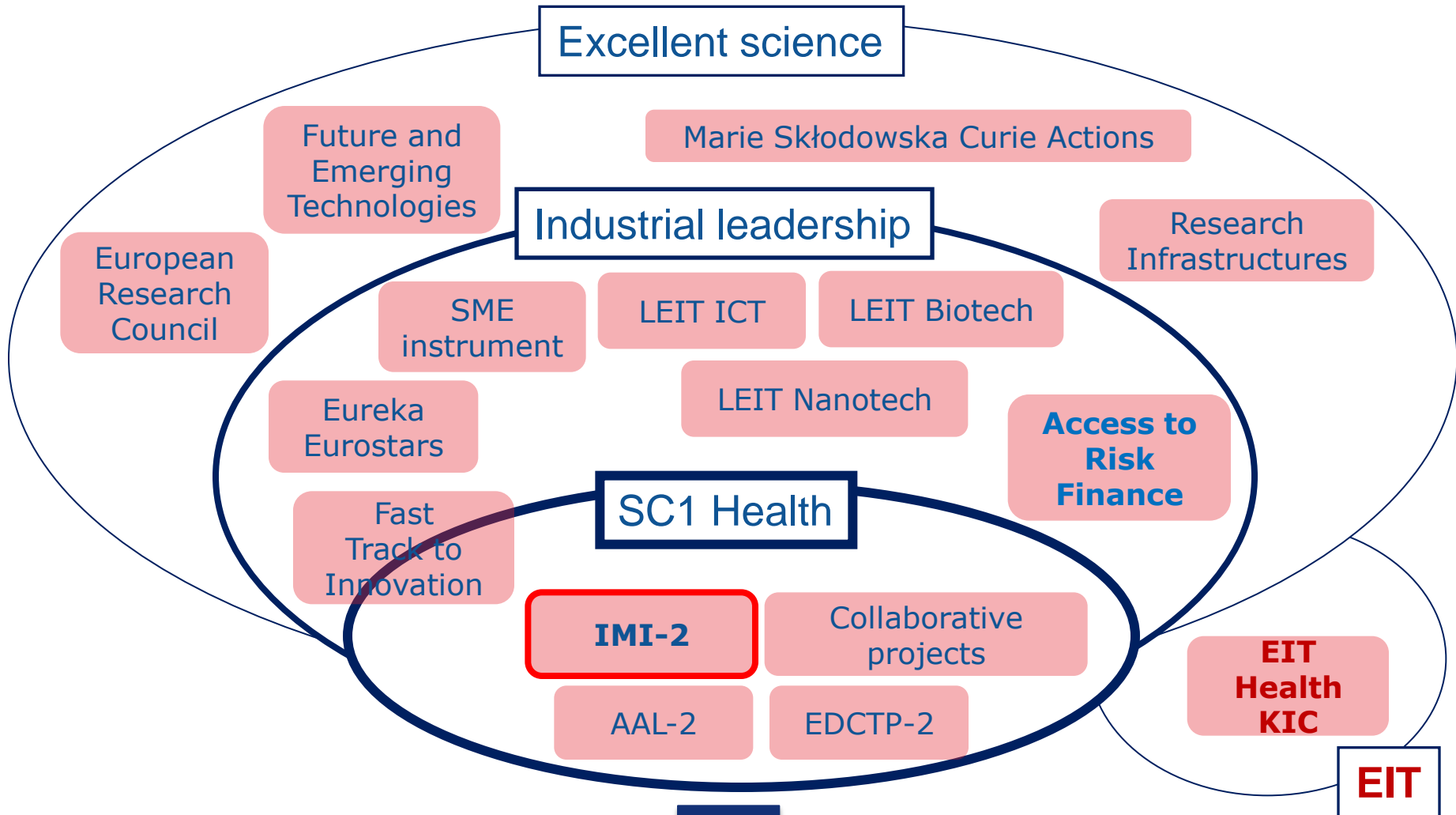
## Specific objectives

- Develop new therapies for diseases for which there is a high unmet need (i.e. Alzheimer) and limited market incentives (i.e. as antimicrobial resistance).
- Reduce the failure rate of vaccine candidates in phase III clinical trials through new biomarkers for initial efficacy and safety checks.

## IMI2 at a glance

- EU funding from H2020: €1638 M
- Duration of the initiative: up to 2024
- Calls publication: in general 1 to 3/year, including ENSO
- Evaluation: usually 2 steps, (1) Expression of Interest and (2) Full Project Proposals
- Typology of projects: quite large size by budget allocated and number of partners.
- Large Industry partners do not receive EU funding
- IPR policy is specific
- EFPIA is member of the JU and represents private partners

# Health R&I in H2020





# Fuel Cells and Hydrogen 2 (FCH2)

## Rationale

- At present, FCH technologies are not **cost-competitive**.
- Full **deployment** of FCH technologies could have large direct and indirect **economic effects** (e.g. automotive industry).
- **Industry** alone cannot address the technological challenge of reducing costs.
- **Collaborative** research as a tool for intervening at EU level is **insufficient**.
- A JTI provides a **stable budgetary** framework to develop and implement an integrated sector-wide R&D strategy and ensure a **clear industrial commitment** to deployment.

## FCH2 General objectives

- Develop a portfolio of clean, efficient and affordable hydrogen & fuel cell solutions in order to:
  - ✓ contribute to European climate-change mitigation and energy-security efforts.
  - ✓ foster a promising new high-tech industry.

## Specific objectives

- Reduce production cost of fuel cells systems for use in transport applications while increasing their lifetime to levels competitive with conventional technologies.
- Increase energy efficiency of hydrogen production from water electrolysis while reducing capital costs.
- Demonstrate feasibility of using hydrogen as a competitive energy storage medium for electricity produced from renewable energy sources.

## FCH2 at a glance

- EU funding from H2020: €665 M
- Duration of the initiative: up to 2024
- Calls publication: in general 1 /year (the trend is for
- Evaluation: 1 step
- Typology of projects: R&I projects by size and budget allocated similar to collaborative research projects; Coordination and Support Actions & Tenders are also funded. No derogations from H2020 rules of participation
- Involvement of public authorities/regions
- The NewEnergy World Industry Grouping and N.ERGHY Research Grouping are members of the JU

## Clean Sky 2 (CS2) Rationale

- To meet EU targets on climate & energy package we need to **reduce** the environmental impact of aviation.
- Aeronautics' future international **competitiveness** will depend on the environmental performance of its technologies.
- Improving the environmental performance in aviation is **complex, expensive** and requires **long-term commitment** (*technological complexity*).
- **Industry alone** cannot address this challenge because of the **expense** and **risks** involved, and because the **social benefits** of cleaner air travel cannot all be appropriated by the investing firms (*market failure*).
- Technological capabilities in aviation are highly specialised, complementary and scattered across Europe, which is why **public intervention** at individual **Member State level** is **insufficient** (*cross-border knowledge*).

## CS2 General objectives

- Improve the environmental impact of European aeronautical technologies in order to:
  - ✓ contribute to the achievement of Europe's 20/20/20 targets.
  - ✓ secure the future international competitiveness of the European aeronautical industry.

## Specific objectives

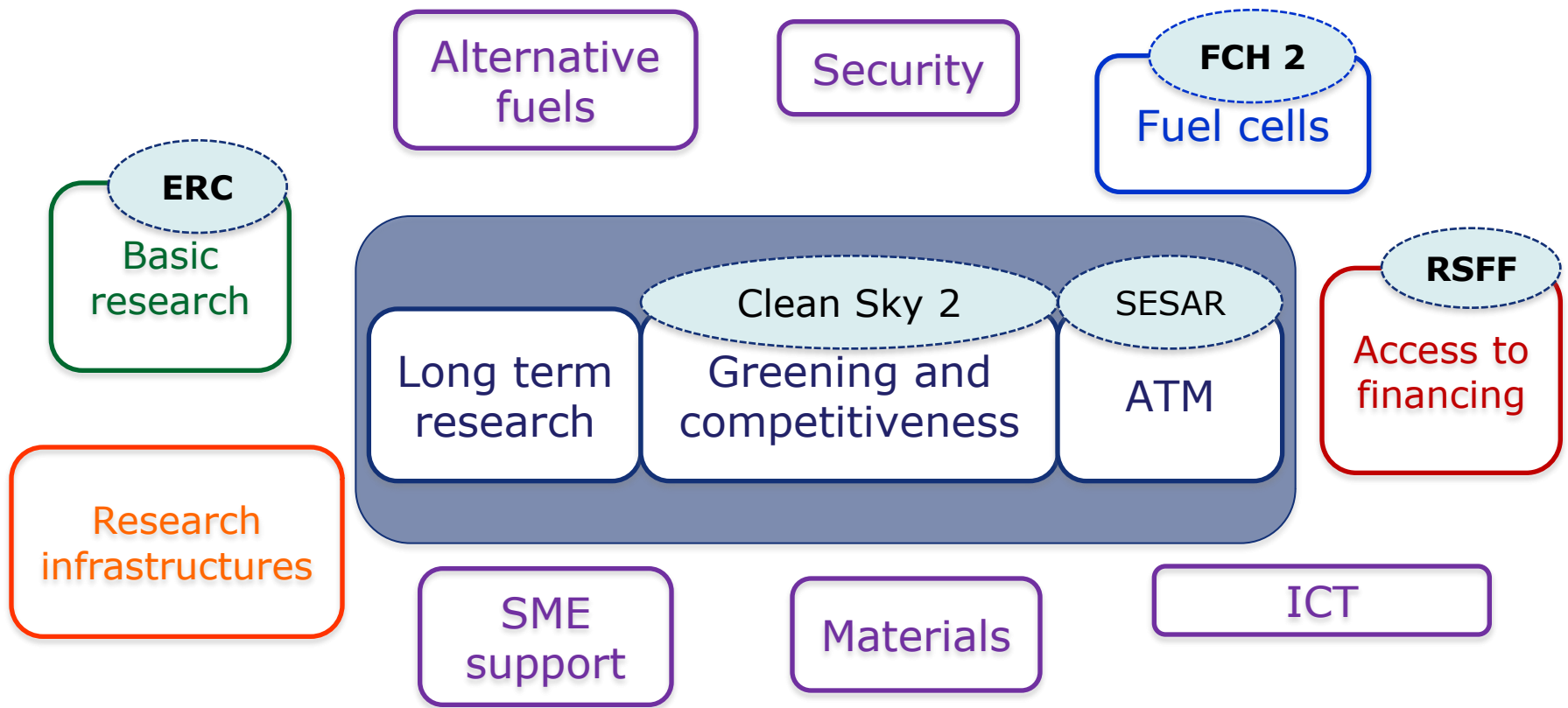
- Integrate, demonstrate and validate technologies capable of:
  - ✓ increasing aircraft fuel efficiency thus reducing CO<sub>2</sub> emissions by 30%.
  - ✓ reducing aircraft NO<sub>x</sub> and noise emissions by 20 to 30 %.

*Targets compared to “state-of-the-art” aircraft entering into service as from 2014.*

## CS2 at a glance

- EU funding from H2020: €1755 M
- Duration of the initiative: up to 2024
- Calls publication: in general several/year (30% of the total budget allocated to call for partners)
- Evaluation: 1 step
- Typology of projects: rather small; topics are precise and often demand "monobeneficiary" applicants. Technical procurement may be launched for limited topics
- 16 large companies are members of the JU. Core partners, will be funded with a further 30% of budget following the launching of calls for proposals (see slide 20)

# Aviation R&I in H2020



# Bio-based Industries (BBI)

## Rationale

- A Bio-based Industries JTI is needed as **catalyser** for the creation of **new value chains**.
  - ✓ **Cross-sectorial collaboration** along value chains of previously unrelated sectors and industries.
  - ✓ Necessary range of **conversion processes** for integrated biorefineries.
  - ✓ **Demonstration** and **deployment** of advanced large-scale biorefineries.
  - ✓ Facilitation and promotion of **bio-based products uptake**.



## BBI General objective

- Contribute to a more resource efficient and sustainable low-carbon economy by developing sustainable and competitive bio-based industries in Europe.

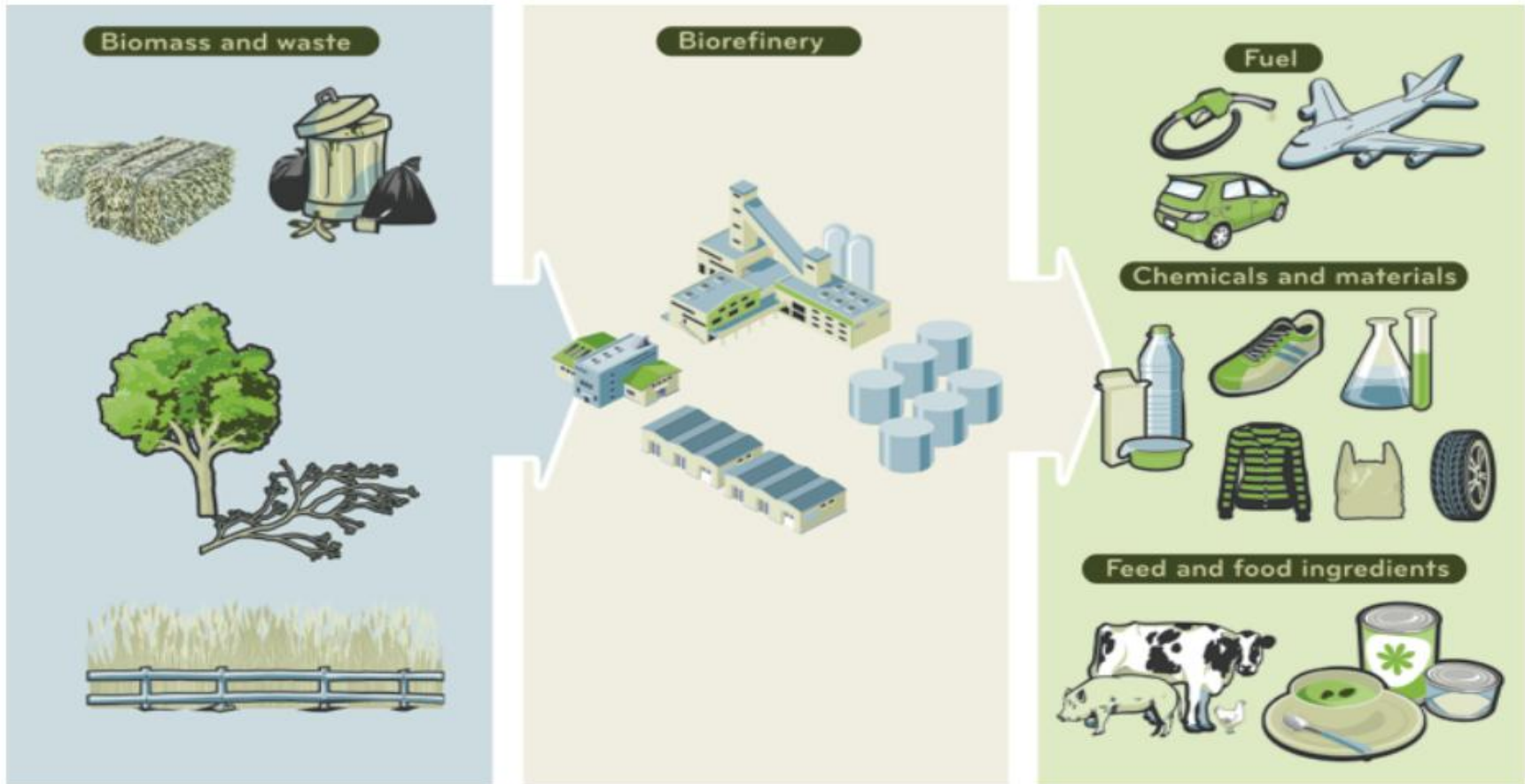
## Specific objectives

- Demonstrate technologies that enable new chemical building blocks and new materials from European biomass.
- Set up flagship bio-refinery plants that deploy the technologies and business models for bio-based materials, chemicals and fuels.
- Develop business models that integrate economic actors along the whole value chain.

## BBI at a glance

- EU funding from H2020: €975 M
- Duration of the initiative: up to 2024
- Calls publication: it is expected 1/year (2 max)
- Evaluation: 1 step
- BIC consortium is member of the JU, BIC is formed by full (namely large industry, SMEs and Clusters) and associated members (universities, research organisations, others)
- Large Industry partners do not receive EU funding
- Synergies with EU Structural Funds are strongly sought

# Biorefinery Concept



## Private Partners: BIC members

Current Bio-based Industry Consortium (BIC) membership:

- 69 full members  
(including subsidiaries)
  - 40 Large industries
  - 17 SMEs
  - 12 Clusters
- 102 associate members
  - 33 Universities
  - 54 RTOs
  - 8 European trade organisations
  - 4 Associations
  - 3 European Technology Platforms (ETPs)



# Electronic Components and Systems (ECSEL)

## Rationale

- **Heavy investments** needed with large spill-over effects across economy and society.
- **Value chain** spread across Europe.
- **Fast moving field, high risk & costly** R&I requiring multi-disciplinary engineering & production skills only available across Europe.
- Only by combining private and public resources at EU, national and regional level we **leverage** the financial and technical means necessary to **master the technologies** and transform research into **commercial success**.

## ECSEL General objectives

- A strong and globally competitive electronics components and systems industry in the EU.
- Availability of electronic components and systems for key markets and for addressing societal challenges.

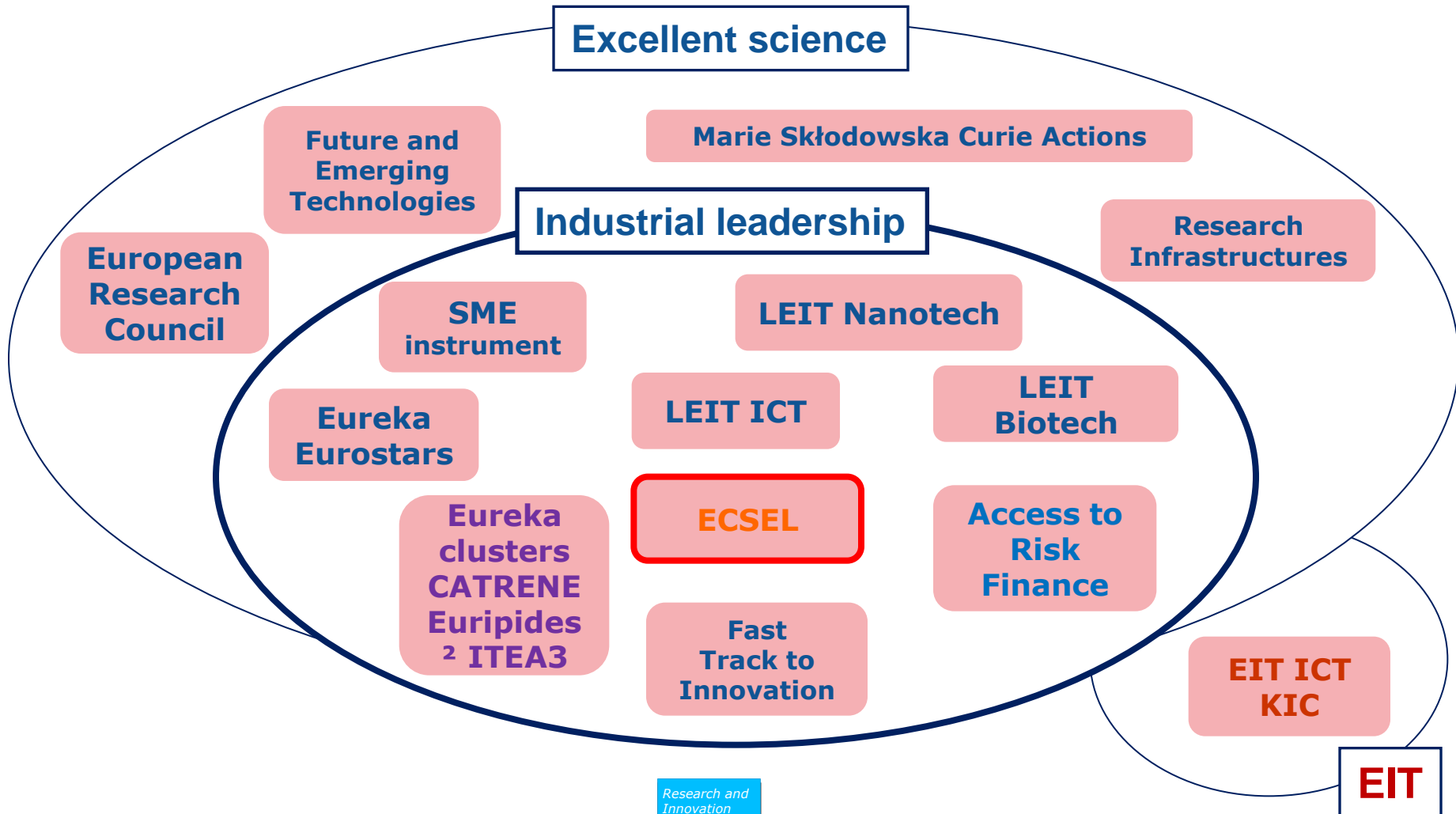
## Specific objectives

- Grow semiconductor and smart system manufacturing capability in Europe.
- Access for all stakeholders to a world-class infrastructure for the design and manufacture of electronic components and embedded/cyber-physical and smart systems.
- A dynamic ecosystem involving innovative SMEs, strengthening existing clusters and nurturing the creation of new clusters in promising areas.

## ECSEL at a glance

- EU funding from H2020: €1 185 M
- Member States (MSs) funding: €1 170 M
- Duration of the initiative: up to 2024
- Calls publication: 1 or 2/year
- –Evaluation: currently 2 steps for both Innovation Actions and R&I Actions (IA and RIA)
- Three Industry Associations are members of the JU ([EPoSS](#), [AENEAS](#) and ARTEMIS) together with MSs and Associated Countries on a voluntary basis
- synergies with EU Structural Funds are possible (MSs are involved)

# Electronics R&I in H2020





# Shift2Rail (S2R)

## Rationale

- **Insufficient share of rail** in the EU transport system in terms of addressing major societal issues such as rising traffic, congestion, security of energy supply and climate change
- Increasing **global competition** in the rail industry
- Need for major and coordinated investments in R&I that respond to **business and end-user needs** to support market uptake and contribute to completing EU transport policy objectives
- Need for a **system-wide approach**, involving all rail stakeholders for better integration

## S2R General objectives

- Promote a **modal shift** towards rail by radically enhancing the **attractiveness and competitiveness** of the railway sector and creating a **Single European Railway Area**;
- Retain and consolidate the European rail industry's **leadership on the global market** for rail products and services.

## Specific objectives

- **reduce life-cycle costs** of the railway transport system;
- **increase capacity** of the railway transport system;
- **improve customer experience**, providing reliable, flexible, accessible, rapid, comfortable, integrated end-to-end solutions;
- **improve interoperability and efficiency**;
- **reduce negative externalities** (noise, vibrations, emissions...).

## S2R at a glance

- EU funding from H2020: €450 M
- Funding is split as follow: 40% to founding members; 30% to associated members; 30% fully open calls for partners
- Duration of the initiative: up to 2024
- S2R is currently in the preparatory phase
- 8 private partners are members of the JU, associated members are to be selected through an open call for proposal, published in October 2014 (see slide 20)

# S2R Operational Activities

## Fourth Railway Package

- Improve **competitiveness** of rail
- Spend **public money** more efficiently

Remove administrative and technical barriers to improve interoperability and safety

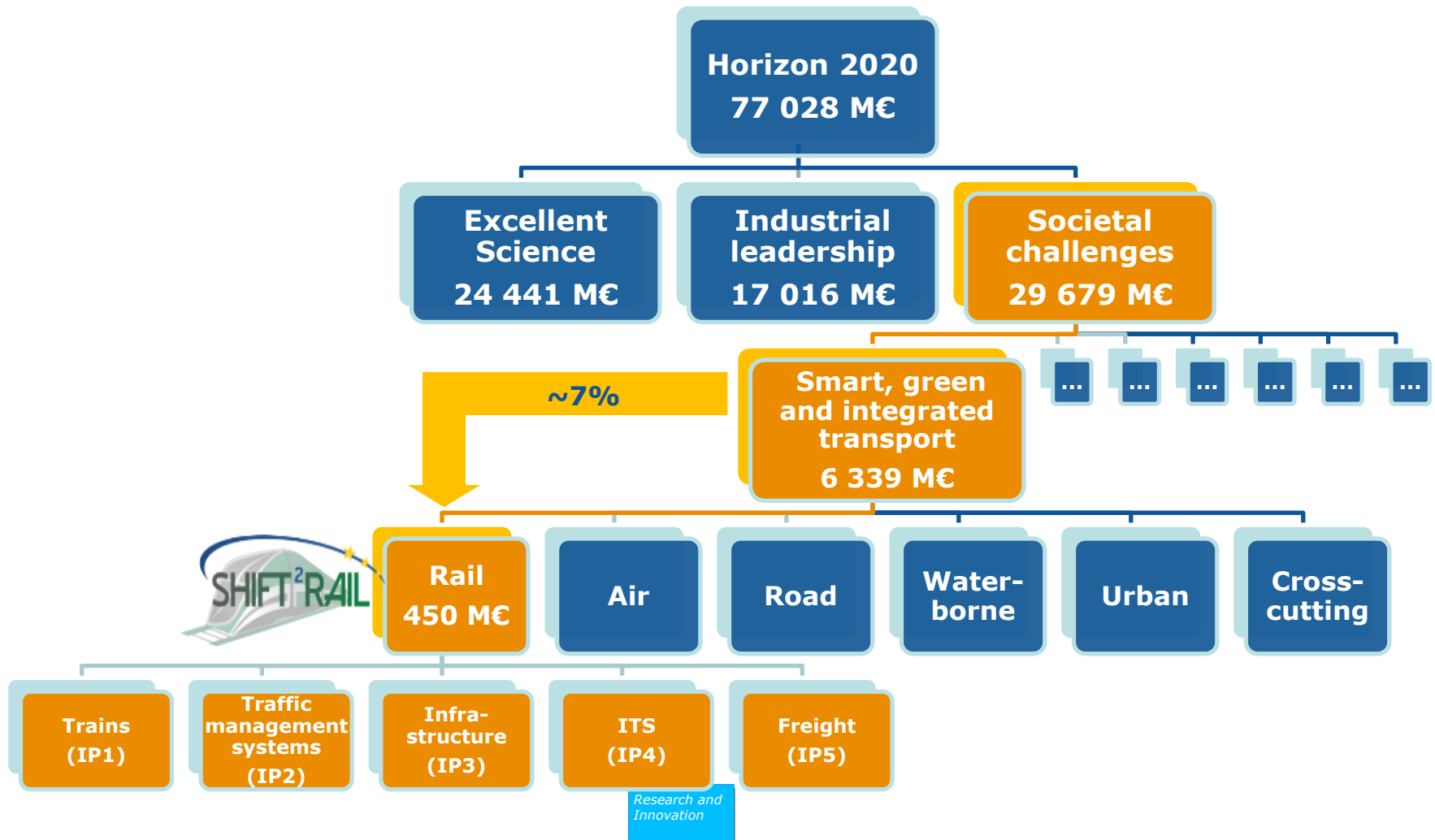
Open domestic rail passenger transport to competition

Better governance of rail infrastructure

**Innovation** pillar of the Single European Railway Area

**Technology evaluator** to close the gap in the innovation chain (ideas markets)

# Rail R&I under H2020



## Who does What?

EC thematic services deal with strategic and policy issues.

### Contact details:

#### **Under DG RTD responsibility**

**IMI:** [Jean-Emmanuel.FAURE@ec.europa.eu](mailto:Jean-Emmanuel.FAURE@ec.europa.eu)

**Clean Sky:** [Ivan.KONAKTCHIEV@ec.europa.eu](mailto:Ivan.KONAKTCHIEV@ec.europa.eu)

**FCH:** [Johan.BLONDELLE@ec.europa.eu](mailto:Johan.BLONDELLE@ec.europa.eu) & [Katarzyna.DRABICKA@ec.europa.eu](mailto:Katarzyna.DRABICKA@ec.europa.eu)

**BBI:** [Laurence.BASTIN@ec.europa.eu](mailto:Laurence.BASTIN@ec.europa.eu)

#### **Under DG CNECT responsibility**

**ECSEL:** [Michel.Hordies@ec.europa.eu](mailto:Michel.Hordies@ec.europa.eu)

#### **Under DG MOVE responsibility**

**Shift2Rail:** [Rachel-Amanda.SMIT@ec.europa.eu](mailto:Rachel-Amanda.SMIT@ec.europa.eu)

The Joint Undertakings deal with operational matters and daily management of calls:

**IMI:** <http://www.imi.europa.eu/> - **organisational chart:**

[http://www.imi.europa.eu/sites/default/files/uploads/documents/IMI\\_Organisation\\_chart\\_2013\\_06\\_20.pdf](http://www.imi.europa.eu/sites/default/files/uploads/documents/IMI_Organisation_chart_2013_06_20.pdf)

**Clean Sky:** <http://www.cleansky.eu/> - **organisational chart:**

[http://www.cleansky.eu/sites/default/files/documents/admin/cs-organigramme\\_1\\_april\\_2013.pdf](http://www.cleansky.eu/sites/default/files/documents/admin/cs-organigramme_1_april_2013.pdf)

**FCH:** <http://www.fch-ju.eu/> - <http://www.fch-ju.eu/page/executive-director-and-programme-office>

**BBI:** <http://bbi-europe.eu/> - **organisational chart:** not yet available

**ECSEL:** <http://www.ecsel-ju.eu/> - **Staff members:** <http://www.ecsel-ju.eu/web/JU/ECSEL%20JU%20Staff.php>

**Shift2Rail:** <http://www.shift2rail.org/> - **organisational chart:** not yet available

## Additional information?

**Issues common to all JTI JUs** (i.e. reporting, monitoring of performance, evaluation, etc.):

**DG RTD unit R.4** (Head of Unit: [Priscila.Fernandez-Canadas@ec.europa.eu](mailto:Priscila.Fernandez-Canadas@ec.europa.eu))

**EU Research and Innovation on Europa:**

<http://ec.europa.eu/research/index.cfm?lg=en&pg=a-z> (A-Z index)

**Research Enquiries Service:**

<http://ec.europa.eu/research/index.cfm?lg=en&pg=enquiries>

**Synergies between EU programmes in support of R&I and competitiveness:**

[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)

**...and of course to participate: The Participant Portal!**

<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>



# THANK YOU FOR YOUR ATTENTION!

[anna.sibilla@ec.europa.eu](mailto:anna.sibilla@ec.europa.eu)