

# International Summer School in Wireless Power Transmission for Space Applications

## The Space Call for H2020

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Portugal



**Aveiro, 23-25 june 2014**

# *The Space Call for H2020 Index*

## **Horizon 2020**

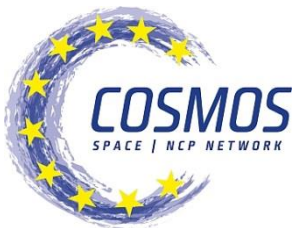
- General information, space programme and activities
- Implementation mechanisms & Rules for participation
- Participant's Portal, submission of proposals and evaluation of proposals

## **NCPs and NETWORKING**

- NCPs role @ COSMOS+ Space NCPs network
- efficient ways in networking with the EU
- Events and networking
- Partner search

## **Horizon 2020 SPACE**

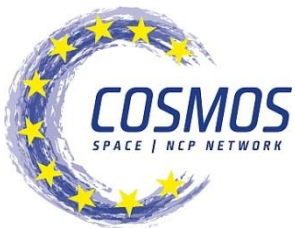
- Vision, objective, budget
- Information on SPACE WP2015



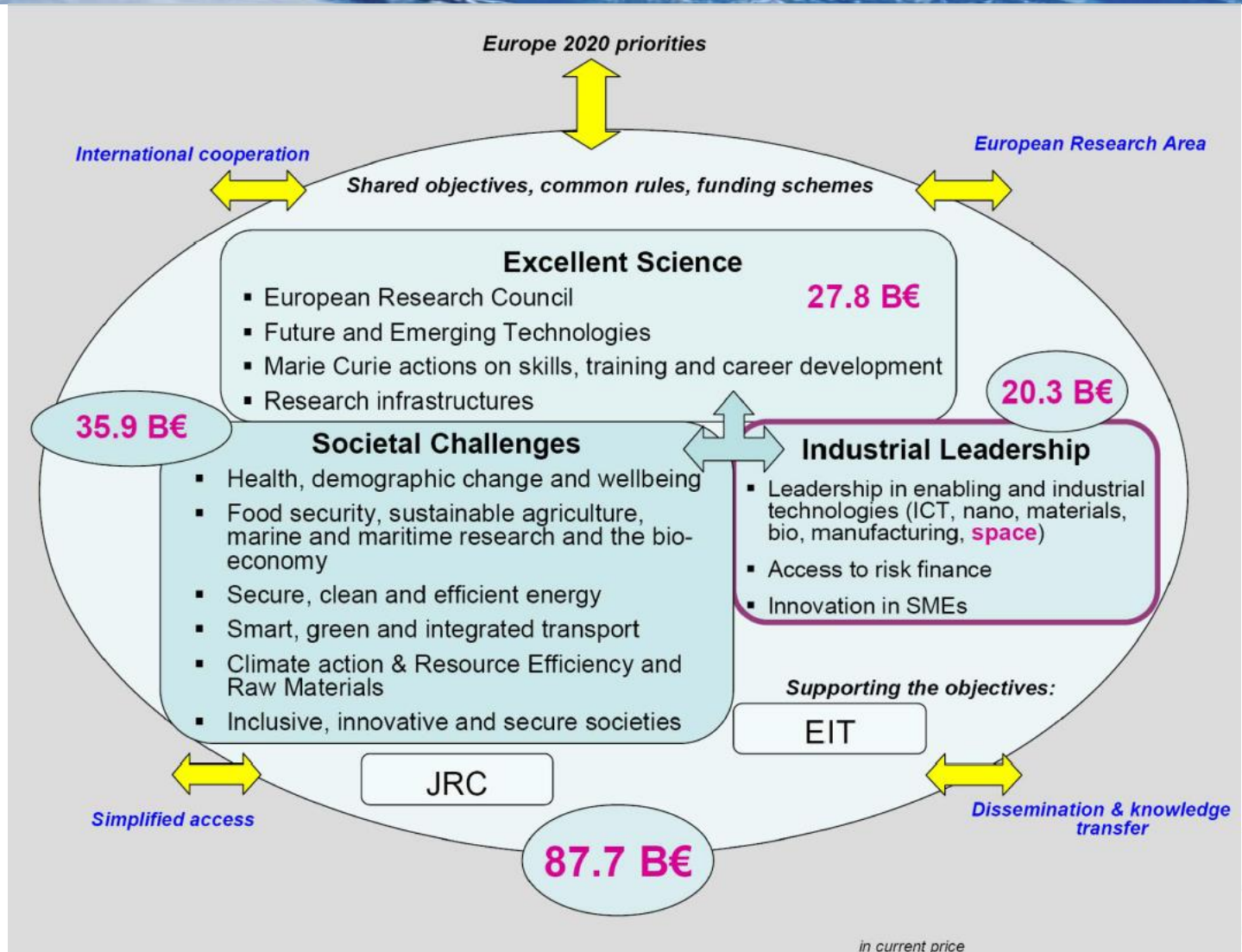
# Horizon 2020

## Introduction

- Europe's main Research, Development & Innovation programme
- **Challenge oriented** rather than technology pushed
- Based on **three pillars**
  - Excellent science
  - Industrial leadership
  - societal challenges
- 3 Pillars Integrated into **ONE** single programme
- **Coupling** research with innovation (from basic research to market)
- Focusing on EU **societal challenges** (Health, Climate, Transport, etc)
- **Simplified access**, for companies, universities, research institutes and SME across 28 EU countries, 12 AC countries and 135 non-European countries



# Horizon 2020 structure



# Horizon 2020

## Sources of information

### Horizon 2020 Participant portal:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html>

### Horizon 2020 Helpdesk:

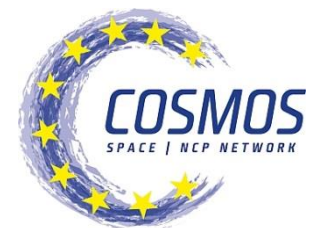
[https://ec.europa.eu/research/participants/portal/desktop/en/support/research\\_enquiry\\_service.html](https://ec.europa.eu/research/participants/portal/desktop/en/support/research_enquiry_service.html)

### Guides for applicants:

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

### H2020 website:

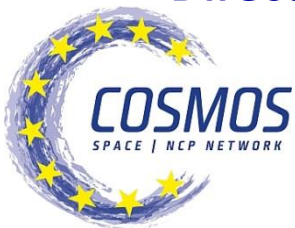
<http://ec.europa.eu/programmes/horizon2020/>



# Horizon 2020

## Implementation Mechanisms

- **Annual calls for proposals (4 instruments)**
  - **RIA** - Research and Innovation Actions (2-15M€ - low TRL)
  - **IA** - Innovation Actions (2-8M€ - High TRL)
  - **SME** - SME Instrument (Phase 1, 50k€ & Phase 2, 0,5-2,5M€)
  - **CSA** - Coordination and Support Actions (1-3M€)
- **Multiannual Strategic Research Clusters (from study to in orbit demonstration stage)**
  - **PSA** – Programme Support Actions (4M€)
- **calls for tenders**
- **Prizes**
- **Public Procurement**
- **Direct negotiation**



# Horizon 2020

## Rules for Participation

- **Funding via Competitive Collaborative Projects**

- **28 EU countries** finance H2020 from the MFF (2014-2020)
- Minimum **3 partners** from 3 different countries per consortium
- **EU Associated Countries** are full beneficiaries of H2020
- **Other 135 non European** countries are also beneficiaries of H2020

[http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014\\_2015/annexes/h2020-wp1415-annex-a-countries-rules\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-a-countries-rules_en.pdf)

- **Funding rates**

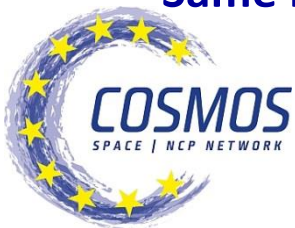
- **Direct Costs (labor and operational costs)**
  - RIA** (100% funding)
  - IA** (70% funding – 100% for non-profit participants)
  - CSA** (100% funding)
- **Indirect costs (Overheads, taxes)**
  - 25%** (flat rate over direct eligible costs)

### **ASSOCIATED COUNTRIES (potential)**

Albania, Bosnia and Herzegovina,  
Faroe Islands, former Yugoslav  
Republic of Macedonia, Iceland,  
Israel, Liechtenstein, Moldova,  
Montenegro, Norway, Serbia,  
Switzerland and Turkey

- **Same rules for all**

Funding rate depend on project not on partner type.



# Horizon 2020

## Participant's Portal - Gate to funding

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

Learn how to participate

Your profile, proposals and projects

(REGISTER BEFORE LOGIN)

Make sure your organization got a PIC

Browse Open or  
closed Calls and  
topics

The screenshot shows the 'RESEARCH & INNOVATION Participant Portal' homepage. A blue arrow points from the 'Learn how to participate' box to the 'HOW TO PARTICIPATE' menu item. Another blue arrow points from the 'Your profile, proposals and projects' box to the 'REGISTER' button. A red arrow points from the '(REGISTER BEFORE LOGIN)' text to the 'REGISTER' button. A third blue arrow points from the 'Browse Open or closed Calls and topics' box to the 'FUNDING OPPORTUNITIES' menu item.

European Commission  
RESEARCH & INNOVATION  
Participant Portal

European Commission > Research & Innovation > Participant Portal > Home

HOME FUNDING OPPORTUNITIES HOW TO PARTICIPATE EXPERTS SUPPORT

LOGIN REGISTER

### Research and Innovation Funding

On this site you can find and secure **funding** for research & innovation projects under the following EU programmes:

- 2014-2020 Horizon 2020 - research and innovation framework programme
- 2007-2013 7th research framework programme (FP7) and Competitiveness & Innovation Programme (CIP)

**Non-registered users**

- search for funding opportunities
- read the funding guide & download the legal documents
- check if an organisation is already registered
- contact our support services or check our FAQs

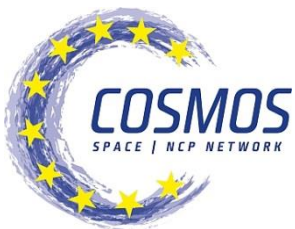
**Registered users**

- submit your proposal
- sign the grant
- manage your project throughout its lifecycle

WHAT'S NEW? FUNDING OPPORTUNITIES HOW TO PARTICIPATE WORK AS AN EXPERT MY PERSONAL AREA INFORMATION AND SUPPORT

RESEARCH ON EUROPA CORDIS OLAF


© European Communities



# Horizon 2020

## Participant's Portal - How to search for calls

(A-Z) Sitemap About this site Contact Legal Notice English

 **RESEARCH & INNOVATION**  
Participant Portal

European Commission > Research & Innovation > Participant Portal > Calls

HOME FUNDING OPPORTUNITIES HOW TO PARTICIPATE EXPERTS SUPPORT

LOGIN REGISTER

### Horizon 2020

Search Topics

Calls

Call Updates

### Other EU Programmes 2014-2020

Research Fund for Coal & Steel

COSME

3rd Health Programme

Consumer Programme

### FP7 & CIP Programmes 2007-2013

Calls

Call Updates

Other Funding Opportunities

## Horizon 2020

**Excellent Science**

- ☐ European Research Council
- ☐ Future and Emerging Technologies
- ☐ Marie Skłodowska-Curie actions
- ☐ Research infrastructures

**Industrial Leadership**

- ☒ Leadership in enabling and industrial technologies (LEIT)
- ☐ Access to risk finance
- ☐ Innovation in SMEs

Filter a call FILTER

Filters only programme and call titles and IDs, for extended search go to the [Search Topics page](#).

**Type**

- ☒ Proposal
- ☐ Tender

**Status**

- ☒ Open
- ☐ Closed
- ☐ Forthcoming

Sort by ☐ Title ☐ Call Id ☐ Publication Date ☐ Deadline Date

**Industrial Leadership**

BIOTECHNOLOGY

H2020-LEIT-BIO-2015-1

Deadline(s): 24/02/2015

Pub.Date: 11/12/2013

**Industrial Leadership**

Call for Nanotechnologies, Advanced Materials and Production

H2020-NMP-ERA-NET-2015

Deadline(s): 26/03/2015

Pub.Date: 11/12/2013

**Industrial Leadership**

Call for Nanotechnologies, Advanced Materials and Production

H2020-NMP-CSA-2015

Deadline(s): 26/03/2015

Pub.Date: 11/12/2013

**Industrial Leadership**

Call for Nanotechnologies, Advanced Materials and Production

H2020-NMP-PILOTS-2015

Deadline(s): 26/03/2015

**Industrial Leadership**

Call for Nanotechnologies, Advanced Materials and Production

H2020-NMP-GV-2014

Deadline(s): 07/10/2014

**Industrial Leadership**

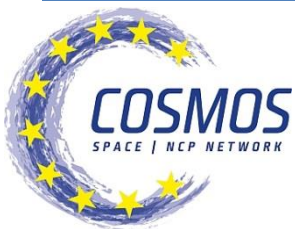
Call for Nanotechnologies, Advanced Materials and Production

H2020-NMP-CSA-2014

Deadline(s): 06/05/2014

Search Calls

Get Details



# Horizon 2020

## Participant's Portal - Search for Topics

Search using  
keywords

Get all topics  
that apply

RESEARCH & INNOVATION  
Participant Portal

European Commission > Research & Innovation > Participant Portal > Calls

HOME FUNDING OPPORTUNITIES HOW TO PARTICIPATE EXPERTS SUPPORT

LOGIN REGISTER

Horizon 2020  
Search Topics  
Calls  
Call Updates

Other EU Programmes 2014-2020  
Research Fund for Coal & Steel  
COSME  
3rd Health Programme  
Consumer Programme

FP7 & CIP Programmes 2007-2013  
Calls  
Call Updates

Keyword Search: **Spaceflight** SEARCH

1 Results  
If you don't find your topic, you can also use the **free text search**.

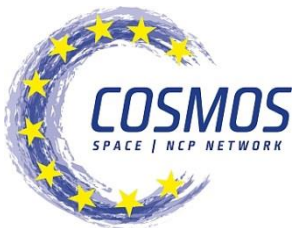
Status: ☒ Open ☐ Closed ☐ Forthcoming  
Sort by: ☒ Title ☐ Call Id ☐ Publication Date ☐ Deadline Date

Topic: **Space exploration - Habitat management:COMPET-04-2015**  
Specific challenge: The International Space Station (ISS) is the current cornerstone of European

Call title: [H2020-LEIT-Space-Competitivenessof the European Space Sector-2015](#) Status: **Open**  
Call identifier: [H2020-COMPET-2015](#) Deadline: 27-11-2014

In addition, **see all the open calls** of Marie Skłodowska-Curie actions (MSCA) and European Research Council (ERC) grants for individual researchers of any nationality and research teams. The MSCA grants include opportunities for companies and SMEs. **The MSCA and ERC grants are not restricted to specific topics.**

Quick finder for topics linked to H2020 cross-cutting priorities:



# Horizon 2020

## Participant's Portal – My Proposals

RESEARCH & INNOVATION  
Participant Portal

European Commission > Research & Innovation > Participant Portal > My Proposals

MY AREA HOME FUNDING OPPORTUNITIES HOW TO PARTICIPATE EXPERTS SUPPORT Search PP JOÃO ROMANA

My Organisation(s)  
My Proposal(s)  
My Project(s)  
My Notification(s)  
My Expert Area

Please note that for stage one proposals submitted in response to two stage calls other consortium partners are not required to be identified in the administrative form but must be mentioned in the Technical Annex. At a later stage, if and when invited for submitting an updated proposal under stage two, all consortium partners will have to be added in the administrative form. This impacts in particular the following calls closing in April:

- H2020-WASTE-2014-two-stage
- H2020-SC5-2014-two-stage
- H2020-WATER-2014-two-stage

My Proposals H2020 ONLINE MANUAL

This page provides a list of all proposals relating to you as a participant, as follows:

- proposals you have initiated or submitted as a Coordinator/Principal Investigator, or
- proposals you have contributed to as a project participant

You can view, edit or download your draft or submitted proposals, depending on the proposal status and the deadline of the relevant call.

To start preparing a new proposal, go to [Funding Opportunities](#), to the page of the call or topic that you want to apply for, and enter the **electronic submission system**.

LEGEND ED Edit Draft VD View Draft VS View Submitted DE Delete Proposal

PROGRAM	CALL	FUNDING SCHEME	PROPOSAL ID	ACRONYM	STATUS	REMAINING	ACTIONS
H2020	H2020-COMPET-2014		SEP-210137040	COSMOS2020	Final		VD VS DE

Showing 1 to 1 of 1 entries. PREVIOUS 1 NEXT

After login click on my proposals to visit those you have created or were invited to

Click to view Draft or Submitted proposals



# Horizon 2020

## How to Submit a Proposal

English is mandatory language for writing proposals and for project deployment

RESEARCH & INNOVATION  
Participant Portal

European Commission > Research & Innovation > Participant Portal > Opportunities

MY AREA HOME **FUNDING OPPORTUNITIES** HOW TO PARTICIPATE EXPERTS SUPPORT Search PP JOÃO ROMANA

My Organisation(s)  
My Proposal(s)  
My Project(s)  
My Notification(s)  
My Expert Area

Horizon 2020  
Search Topics  
Calls  
Call updates

Other EU Programmes 2014-2020  
Research Fund for Coal & Steel  
COSME  
3rd Health Programme  
Consumer Programme

FP7 & CIP Programmes 2007-2013  
Calls  
Call updates

Horizon 2020 dedicated SME Instrument - Phase 2 2014  
H2020-SMEINST-2-2014 Sub call of: H2020-SMEInst-2014-2015

Publication date	2013-12-11	Deadline Date	2014-12-17 17:00:00 (Brussels local time)
Total Call Budget	€220,897,600	Intermediate deadlines(s)	2014-10-09 +17:00:00 (Brussels local time)
Status	Open	Main Pillar	Industrial Leadership
		OJ reference	OJ C361/9 of 11 December 2013

Topic: SME Instrument Space-SME-2014-2

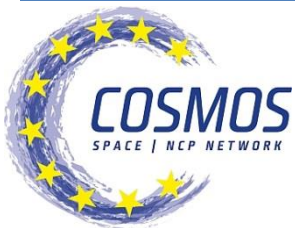
Topic Description Topic Conditions & Documents **Submission Service**

To access the Electronic Submission Service of the call, please select the **type of action** that is most relevant to your proposal from the list below. You will then be linked to the correct entry point.

To access existing draft proposals for this call, please login to the Participant Portal and select the My Proposals page of the My Area section.

SME instrument phase 2 (SME) **START SUBMISSION**

After finding the open topic you want to go to “submission service” and click “Start submission”



# Horizon 2020

## How to Submit a Proposal

Your name, call and topic should be visible here

If you were correctly associated with your entity it should be visible here your

In case you need to select a different entity type your entity PIC or name here and click "search button"

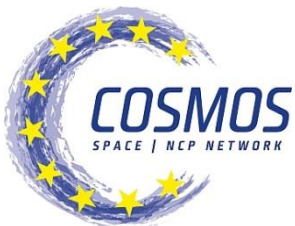
Must type your proposal Acronym and Summary here and click "next button"

The screenshot shows the 'Create a Draft Proposal' step of the Horizon 2020 submission process. The form is divided into several sections:

- Navigation Bar:** LOGIN, FUNDING SCHEME, CREATE DRAFT (active), PARTIES, EDIT PROPOSAL, SUBMIT.
- Step 3: Create a Draft Proposal**
  - H2020-SMEINST-2-2014:** Shows the user's name (João Romana), the funding scheme (Space-SME-2014-2), the topic (SME-2), the deadline (October 2014 17:00:00 Brussels Local Time), and the time left (171 days).
  - Configuration OK:** A green checkmark indicating that the user's browser (Explorer 10 on Windows) and Adobe Reader (version 11.0.0) are correctly installed.
- Create a Draft Proposal:** A section with instructions: "Please enter the following information to create a draft proposal. Please note that fields marked with a star (\*) are mandatory."
- Your organisation:** A section with fields for PIC\* (with a help icon), Short name\* (with a help icon), and a text input field containing "MY ENTITY NAME". Below these fields is a list of "Organisations you have been previously associated with. Click to select." and a "Search for your organisation PIC" button.
- Your Role:** A section with a heading "Please indicate your role in this proposal" and two radio buttons: "Main contact" (selected) and "Contact person".
- Your Proposal:** A section with instructions: "Please choose an acronym for your proposal. It will appear also in the 'General Information' section of the submission form Part A and can also be updated there." It includes fields for "Acronym\*" and "Short Summary (max. 2000 characters)\*", with a "Character count:" label.

Annotations on the form include:

- A blue arrow pointing from the "Your name, call and topic should be visible here" text to the "H2020-SMEINST-2-2014" section.
- A blue arrow pointing from the "If you were correctly associated with your entity it should be visible here your" text to the "Short name\*" field.
- A red circle around the "Organisations you have been previously associated with" list.
- A blue arrow pointing from the "In case you need to select a different entity type your entity PIC or name here and click 'search button'" text to the "Search for your organisation PIC" button.
- A blue arrow pointing from the "Must type your proposal Acronym and Summary here and click 'next button'" text to the "Acronym\*" and "Short Summary" fields.



# Horizon 2020

## How to Submit a Proposal

### PART A: Fill in the on-line administrative proposal template form:

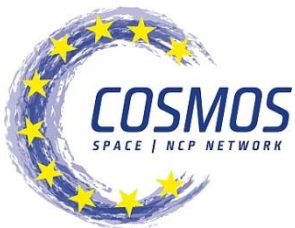
- Participant name
- Type of organisation
- Acronym
- Summary
- PIC
- Contact details
- Other admin. Data
- Proposal Budget

**Don't forget to submit the proposal long before the deadline**

**You can submit as many time as you want, last version prevails**

### PART B: Upload PDF files with technical proposal and annexes (careful w/ page limits):

- Excellence
- Impact
- Implementation
- Participants profile
- Ethics & Security



# Horizon 2020

## Evaluation of Proposals

[http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014\\_2015/annexes/h2020-wp1415-annex-h-esacrit\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-h-esacrit_en.pdf)

**H2020 proposals are evaluated based on three standard criteria:**

### 1. Excellence

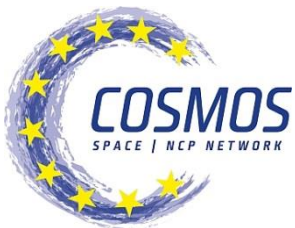
- Clarity and credibility of the proposed approach
- Soundness of concept, ambition and innovation potential

### 2. Impact

- Enhancing innovation capacity/integration of new knowledge
- Strengthening the competitiveness by developing innovations
- Other environmental and social impacts
- Exploit, disseminate and communicate project results

### 3. Quality and Efficiency of the Implementation

- Coherence and effectiveness of the work plan, allocation of tasks and resources
- Complementarity of the participants
- Management structure, including innovation management



# Horizon 2020

## Evaluation of Proposals

### Each proposal is scored:

- From **0.0** (Non-relevant) to **5.0** (Excellent)
- Half marks can be used
- Criterion thresholds are applied (Usually 3.0)
- Overall threshold also applies (Usually 10)
- Higher thresholds can be adopted

### Proposals above threshold are ranked:

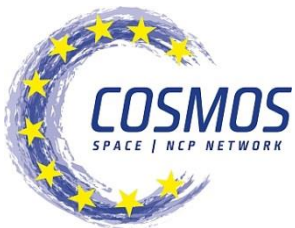
- Coordinators receive a Evaluation Summary Report
- Budget is allocated top down according to rank
- Proposals within budget are labeled **Mainlist**
- Proposals outside are **Reserve list**
- Main list proposals are invited to negotiations
- In case negotiation fails first reserve climbs

Remote evaluation of each proposal by a minimum of 3 experts (month 3)

Consensus meetings take place to solve draws and decide final ranking (month 5)

Negotiation may take place between EC and coordinator (month 7)

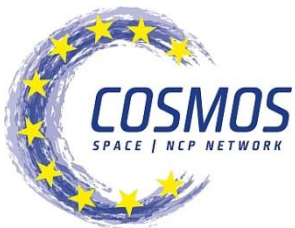
Signature of Contract (month 9)



# National Contact Points (NCP)

## NCP role in H2020

- NCP are nationally funded by Member States
- NCP are a valuable Professional service, as proven by previous records
- NCP are an essential component of H2020 providing:
  - **Interface** between national community and EC
  - **Local** support in local language
  - Detailed **technical** information on topics
  - Networking with other NCPs (NCP **networks** / **COSMOS**)
  - Connection with **other** programmes as COSME, COST, Structural funds
  - Cooperation with European Enterprise Network (**EEN**) on horizontal issues (Centralised trainings, participation rules, gender, etc.)
  - **Dissemination** of relevant information among partners
  - Partner **search** and partner support



# National Contact Points (NCP) The COSMOS+ network of Space NCPs

## COSMOS+

“Continuation of Cooperation Of Space NCPs as a Means to Optimise Services”

Consortium led by German Aerospace Center DLR which currently includes 23 Space NCPs from 21 countries, plus 15 Space NCPs from associated countries and 8+ International Partners from non-European countries

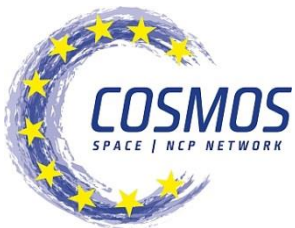
### Funding

**FP7 COSMOS (2M€)** : 1 January 2008 – 31 March 2012

**FP7 COSMOS+ (1M€)** : 1 May 2012 – 30 July 2014 (extension to 30 November requested)

**H2020 COSMOS2020** : pending approval of proposal for continuation of COSMOS under H2020 as of January 2015

[www.ncp-space.net](http://www.ncp-space.net)



# National Contact Points (NCP) COSMOS+ Activities

- Organize SPACE infodays on behalf of the EC
- Mentoring NCPs from new member states, associated countries and international countries
- Training NCPs
- Promote International Cooperation among NCPs and space players
- Fostering integration of less performing countries
- Organize Events for matchmaking and networking across Europe

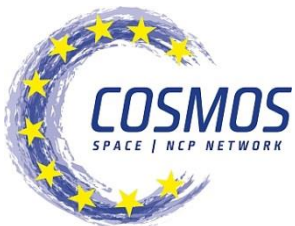
<http://www.b2match.eu/h2020spacetour/pages/home>

- Coming Event “Toulouse Space Show”

<http://www.space-infoday.eu/>

- Partner Search:

<http://www.b2match.eu/h2020spacetour/search>

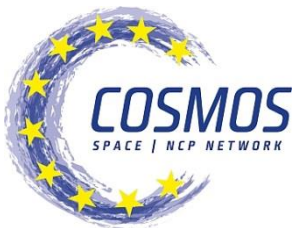


# Horizon 2020 SPACE Vision for the SPACE Programme

- Foster a space research community and a cost-effective, competitive and innovative space industry (including SMEs) to develop and exploit space infrastructure to meet future Union policy and societal needs.
- Foster complementarity with ESA initiatives and national space programmes



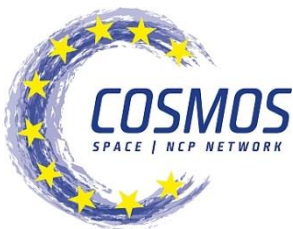
Prepare for the increasing role of space in the  
**future** and reap the benefits of space **now**



# Horizon 2020 SPACE

## Objectives of the Space Programme

- **Enhance competitiveness, non-dependence, and innovation of EU space sector**  
maintain a globally leading role in space by safeguarding and developing a competitive space industry and research community and by fostering space-based innovation
- **Enable advances in space technologies**  
ensure the capability to access space and to operate space systems to the benefit of European society in the next decades
- **Increase exploitation of space data**  
ensure more extensive utilisation of space data from existing and future European missions in the scientific, public and commercial domain
- **Enable participation in international space partnerships**  
support the European research and innovation contribution to long term international space partnerships



# Horizon 2020 SPACE Global Budget

Main financing tool for space players in H2020

**PRIORITY: INDUSTRIAL LEADERSHIP**

**LEADERSHIP IN ENABLING AND INDUSTRIAL TECHNOLOGIES (LEIT)**

**Space (1737 M€ ~ 240M€)**

**Key Enabling Technologies (KETs)**

**ICT**



**FCT**

Fundação para a Ciência e a Tecnologia  
MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA



# Horizon 2020 SPACE Global Budget

## Other financing opportunities for space under H2020

SME support via **SME Instrument** & **Fast Track to Innovation**

Space on behalf of **societal challenges** (Transport, Climate, Security,...)

Space players can access **risk finance**



# Horizon 2020 SPACE

## Technology Readiness Levels (TRL)

### TRL definitions:

**TRL 1** – basic principles observed

**TRL 2** – technology concept formulated

**TRL 3** – experimental proof of concept

**TRL 4** – technology validated in lab

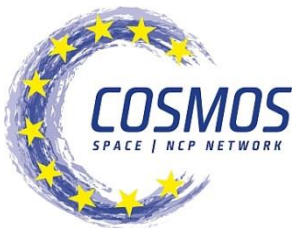
**TRL 5** – technology validated in relevant environment (industrial relevant)

**TRL 6** – technology demonstrated in relevant environment (industrial)

**TRL 7** – system prototype demonstration in operational environment

**TRL 8** – system complete and qualified

**TRL 9** – system proven in operational environment (industrial competitive manufacturing)



# Horizon 2020 SPACE WP2015 details

Information on Work Programme 2015 (topics, dates, budget) are provided on an indicative basis only.

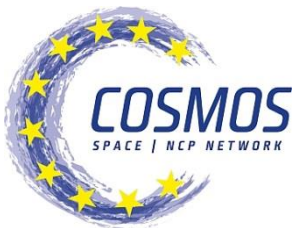
Final decision on Work Programme 2015 will be taken during 2014.

The opening date for WP2015 is still pending decision:

- **Open: November 2014**
- **Deadline: 8 April 2015**

**Full text for WP 2015:**

[http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014\\_2015/main/h2020-wp1415-leit-space\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-leit-space_en.pdf)

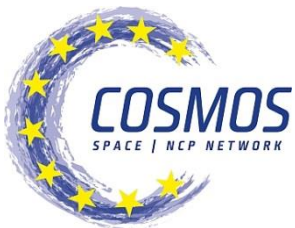


# Horizon 2020 SPACE WP2015 overview

## SPACE Work Programme 2015 per area:

- Applications in Satellite Navigation – Galileo 2015 (25 ME)
- Protection of European assets in and from space 2015 (6,5 ME)
- Competitiveness of the European Space Sector: Technology and Science 2015 (36,5 ME)
- Earth Observation 2015 (26 ME)
- Fast Track to Innovation and SME Instrument 2015 (8,25 ME)
- Other actions

***Topics relevant to Wireless Power Transmission highlighted***



# Horizon 2020 SPACE WP 2015

## Call Earth Observation

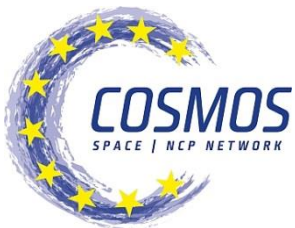
### EO 1 – 2015: Bringing EO applications to the market

*Scope: The outcome of this innovation project should be a commercial service platform, sustained by a production process capable to deliver to the user a product which is validated and accepted as a marketable product.*

*Expected impact: Proposals are expected to establish sustainable supply chains for innovative EO applications with demonstrated commercial value with targeted client communities. Complete integration into the customer's existing business processes and processing chains, as well as the economic viability of the application is to be demonstrated.*

*Type of action: IA*

*Funding ranging 1 to 2 ME*



# Horizon 2020 SPACE WP 2015

## Call Earth Observation

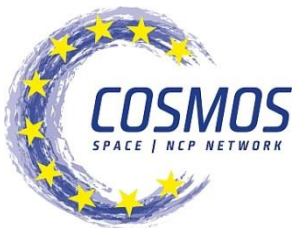
### EO-2-2015: Stimulating wider research use of Copernicus Sentinel Data

*Scope: To fully benefit from the high scientific, operational and commercial potential of the Sentinel data (optical imaging data), development tools, as well as stable and predictable access methods need to be developed*

*Expected impact: Significantly wider use of Copernicus Sentinel data should be achieved, in Europe as well as internationally. Increased awareness with users of satellite data is to be generated and further opportunities for new uptake of satellite data should be created.*

*Type of action: RIA*

*Funding ranging 2 to 3 ME*



# Horizon 2020 SPACE WP 2015

## Call Earth Observation

### ***EO-3-2015: Technology developments for competitive imaging from space***

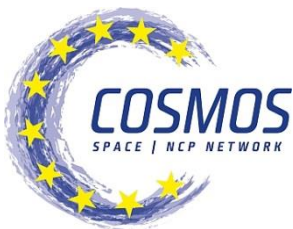
*Scope: Research should be undertaken to review the emerging fractionated observation system concepts. The required technology challenges as regards interfacing, synchronisation, formation flying, **precision thrusting and pointing, communication within the constellation or with ground stations** are to be identified.*

*Expected impact: Proposals are expected to contribute to increasing the effectiveness of future developments by addressing*

- significant advances in performance*
- greater coherency between different measurement sources,*
- mission planning parameters,*
- mission scalability and incremental deployment.*

***Type of action: RIA***

***Funding ranging 2,5 ME***



# Horizon 2020 SPACE WP2015

## Call Protection of European Assets in and from Space

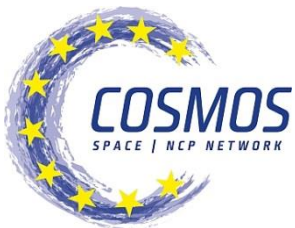
### ***PROTEC-1-2015: Passive means to reduce the impact of Space Debris***

*Scope: To develop and test concepts and technologies needed for safe de-orbiting and disposal of space objects, including up to in-orbit demonstration as an option. Planned end-of-life de-orbiting or safe disposal of new satellites and launch vehicle's upper stages as well as non-technical issues including legal issues should be considered.*

*Expected impact: Innovative and cost effective solutions, allowing scalable system-design, for post-mission disposal of satellites and launcher upper stages which are in line with or exceed international and European guidelines and legal requirements.*

*Type of action: RIA*

*Funding ranging 3 to 4 ME*



# Horizon 2020 SPACE WP2015

## Call Competitiveness of the European Space Sector

### ***COMPET-1-2015: Technologies for European non-dependence and competitiveness***

*Scope: Research in technologies for European non-dependence and competitiveness has been undertaken within the frame of the EC-ESA-EDA joint initiative on Critical Technologies for European non-Dependence, launched in 2008. Activities to be proposed in this call will address technologies identified on the list of Urgent Actions:*

*U4 - Advanced materials and material technology for combustion chambers*

*U6 - Fibre Optic Gyro (FOG) based Inertial Measurement Unit – IMU*

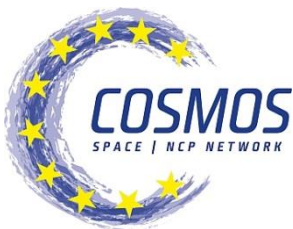
*U7 - Power amplification: Travelling Wave Tube (TWT) materials*

*U12 – High Capacity Field-Programmable Gate Array (FPGA)*

*Expected impact: Reduce the dependence on critical technologies and capabilities from outside Europe for future space applications. Develop or regain in the mid-term the European capacity to operate independently in space. Enhance the technical capabilities and overall competitiveness of European space industry satellite vendors on the worldwide market*

*Type of action: RIA*

*Funding ranging 2 to 4 ME*



# Horizon 2020 SPACE WP2015

## Call Competitiveness of the European Space Sector

### COMPET-2-2015: Independent access to space

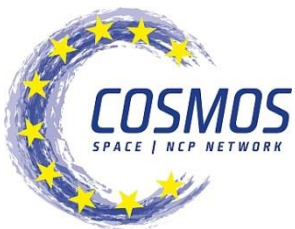
*Scope: All possible technologies and launching systems, including partly reusable systems and subsystems, will be considered provided that they can demonstrate complementarity and no overlapping with on-going launcher developments and credible realization options. Due consideration will be given to the potential of these technologies to strengthen competitiveness and cost-efficiency as well to their commercial potential.*

*Expected impact: The technological developments to be addressed must target either a breakthrough in technologies for accessing space or a relevant optimization **or cost reduction of the launch present propulsion systems** in terms of fostering the European capabilities of accessing space. It is welcomed to explore new solutions for affordable and reliable launcher capabilities in benefit of the wide spectrum of European space RTD community needs (from sub-orbital to orbital injection).*

*Technologies identified not addressed in the equivalent 2014 call will be preferentially considered.*

*Type of action: RIA*

*Funding ranging 2 to 4 ME*



# Horizon 2020 SPACE WP2015

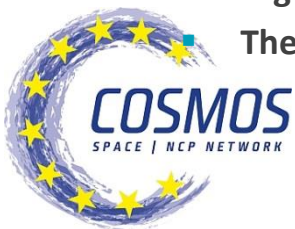
## Call Competitiveness of the European Space Sector

### COMPET-3-2015: Bottom-up space technologies at low TRL

*The aim of this topic is to attract new actors to space and demonstrate technologies that are potentially disruptive and not only incremental. Drastical increments in miniaturisation, power reduction, efficiency, versatility, and increased functionality are as well expected. Proposals based on low TRL (1-3) ideas and technologies which could have a final application in future Space systems are solicited. The target is to demonstrate them up to TRL (4-5).*

*Proposals are sought with relevance in:*

- Energy storage
- Energy production
- Materials and structures
- Additive layer manufacturing techniques
- Mechanisms
- **Wireless power transmission**
- High performance and reliable electronics to boost on-board power
- Thermal control management systems



*Type of action: RIA*

*Funding ranging 1 ME*



# Horizon 2020 SPACE WP2015

## Call Competitiveness of the European Space Sector

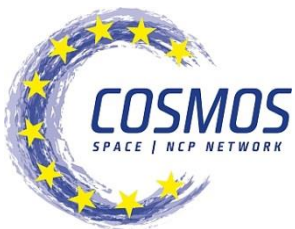
### Topic: COMPET-4-2015: Space exploration – Habitat management

*Scope: Prepare for demonstrating technologies, and operations techniques and process, critical for **future human missions** as well as advancing knowledge related to **human spaceflight and terrestrial applications** for the benefits of citizens. In this topic, synergies between space and non-space actors (e.g. industrial ecology, health sectors) will be sought.*

*Expected impacts: Proposals are expected to prepare the ground for further innovative development of R&D in human spaceflight and future terrestrial applications. Systems are expected to be developed and tested on the ground and demonstrate operational capability (or close to). An important impact is also the potential applicability of the test projects on-board ISS. Results will therefore have to attain the necessary maturity to fulfil this promise.*

*Type of action: RIA*

*Funding ranging 3 to 6 ME*



# Horizon 2020 SPACE WP2015

## Call Competitiveness of the European Space Sector

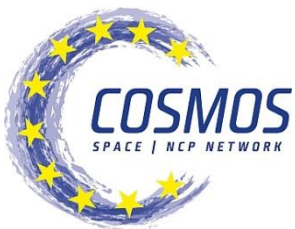
### COMPET-5-2015: Scientific exploitation of astrophysics, comets, and planetary data

*Scope: Astrophysics proposals shall make use of, or prepare for the use of ESA astrophysics missions, possible in combination with ground-based observations, and/or data from non-ESA missions (e.g. NASA, JAXA, or other national missions). Comets proposals shall prepare for and make use of the Rosetta mission, possibly in combination with ground-based observations, and/or data from non-ESA missions (e.g. NASA, JAXA, or other national missions). Planetary proposals shall make use of European missions and European instruments on-board international planetary missions and/or data from non-ESA missions (e.g. NASA, JAXA, or other national missions).*

*Expected impact: A higher number of scientific publications based on Europe's space data, high-level data products made available through appropriate archives, and tools developed for the advanced processing of data. Proposals are expected also to add value to existing activities on European and international levels, and enhance and broaden research partnerships.*

*Type of action: RIA*

*Funding ranging 1,5 ME*



# Horizon 2020 SPACE WP2015

## Call Competitiveness of the European Space Sector

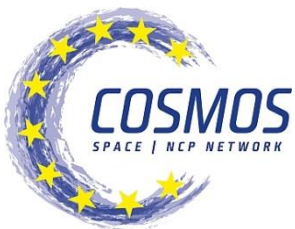
### COMPET-6-2015: International Cooperation in space science

*Scope: In line with the objectives of the Union's strategy for international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with space powers active in planetary science. The diverse range of competences spread among universities, research institutes, and space agencies in different countries in the world, should be harnessed in this proposal in view of establishing a coordinated authoritative position in the planetary protection research field. Networking, experts meetings and workshops resulting in recommendations for further action and guidelines for future missions are part of the effort.*

*Expected impact: This activity would allow reviewing the planetary protection status of outer Solar System bodies including small Solar System bodies. That may include to establish a new categorisation and the measures that should be taken (or not) to protect them from Earth-sourced biological and organic contamination.*

*Type of action: RIA*

*Funding ranging 0,75 ME*



# Horizon 2020 SPACE WP2015

## Call SME Instrument

### SME Instrument

*The specific challenge of the actions envisaged under this call could cover any aspect of the Specific Programme for Space (Horizon 2020 Framework programme and Specific programme). However, it is considered that actions in the areas of **applications**, especially in connection to the flagship programmes **Galileo and Copernicus**, **spinning-in** (i.e. application of terrestrial solutions to challenges in space) and the development of **certain critical technologies** could be adequately suited for this call.*

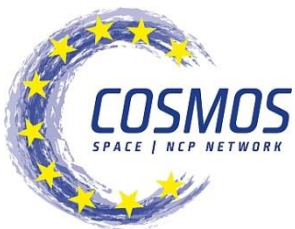
*Scope: The SME instrument consists of **three** separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.*

**Phase 1, feasibility study (technological and economic viability of idea/concept)**

**Phase 2, innovation projects that demonstrate competitiveness and growth.**

*Type of action: SME Instrument (only for SMEs)*

*Funding 50 KE lump sum at Phase 1 and 0,5 to 2,5 ME at Phase 2*



# Horizon 2020 SPACE WP2015

## Other Actions

### 7. GNSS Evolution, Mission and Services related R&D activities

*Development of enabling technologies for future generations of EGNSS missions, and to support activities that enable the full exploitation of the EGNSS infrastructure in public, scientific and commercial fields.*

*Topic (1): Advanced mission concepts Indicative budge (2 M€)*

*Topic (2): Ionosphere prediction service Indicative budget: (1 M€)*

*Topic (3): Commercial Service Indicative budget: (1 M€)*

*Topic (4): Support to the Galileo Safety of Life Service re-profiling, in particular for Advanced Receiver Autonomous Integrity Monitoring – ARAIM Indicative budget: (1 M€)*

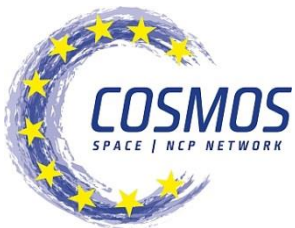
*Topic (5): Signals evolution Indicative budget: (1M€)*

*Type of action: Public procurement*

### 8. GNSS evolution, infrastructure-related R&D activities

*This does not include implementation of the next generation EGNSS infrastructures which shall be financed out of the EGNSS programme budget line.*

*Type of action: Indirect management by ESA , Indicative budget: (55 M€)*



# Horizon 2020 SPACE Other Actions (2015)

## 9. Space surveillance and tracking (SST)

*This action specifically aims (1) at supporting the pooling of national resources on the SST objectives outlined in COM (2013) 107 and coinciding with objectives and challenges of H2020 related to protecting Europe's investment made in space infrastructure; and (2) at achieving significant economies of scales by adding related H2020 resources to this joint effort, instead for the Commission to implement its own specific activities.*

*Type of action: Grant to identified beneficiary - coordination and support actions , Indicative budget: EUR 2 million from the 2015 budget*

## 10. Improving the Performances of the SST at European Level

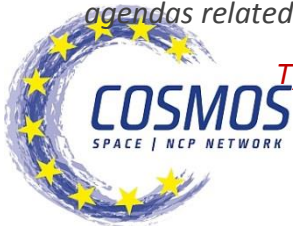
*The EU is ready to support the emergence of a European SST service built on a network of existing SST assets, notably sensors (radars and telescopes) owned by Member States. This will require the commitment of Member States owning relevant assets to cooperate and provide an anti-collision service at European level.*

*Type of action: Grant to identified beneficiary - coordination and support actions, Indicative budget: EUR 12 million from the 2015 budget*

## 11. Studies & Communication

*During 2015 it is envisaged to support the preparation of communication material, dissemination of material, or conduct public procurement activities to enable communication of Horizon Space activities, and for organisation of events (conferences, workshops or seminars) related to the implementation of the European Space Policy, European R&D research agendas related to Horizon 2020.*

*Type of action: Public procurement - framework contracts and/or calls for tender*



# H2020 SPACE in Short

## Key points

- H2020 is based on a competitive open call system
- Research, Industry, SME, public entities have similar financial conditions
- Research partners always get 100% funding (direct costs) + 25% (indirect costs)
- 28EU countries + ?? AC countries + 135 non-EU countries are fully eligible
- BRIC countries and high income countries can participate but are not funded
- 3 partners from 3 different countries as minimum (except SME instrument)
- Foster Cooperation among EU and international partners
- Proposals are evaluated by independent experts (ESA expert included)
- 9 month from submission deadline to contract
- Next deadline 8 April 2015 (call 2015)
- The COSMOS NCP network is here to help you

**Looking forward to your participation in H2020 Space**

