

# Horizonte 2020 Espacio Convocatoria 2016

**Paloma Dorado**  
**Punto Nacional de Contacto H2020 Espacio**

Jornada Informativa Horizonte 2020 Espacio  
Barcelona, 14 de Diciembre de 2015

# ÍNDICE

- Programa Marco en el contexto espacial
- Resultados de la 2ª convocatoria H2020 Espacio (convocatoria 2015)
- Programa de trabajo 2016-2017. Oportunidades en 2016
- Recomendaciones para la preparación de propuestas.
- Apoyo de CDTI a los participantes
- Próximos eventos e información adicional

# Programas espaciales con financiación Europea

## New Multiannual Financial Framework 2014-2020

~ 12.000 M€

~ 1.400 M€



~ 3.800 M€

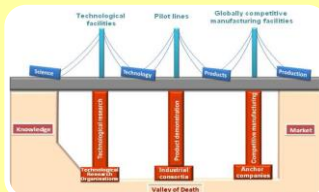


Navigation solutions powered by Europe

~ 6.300 M€

# Horizonte 2020

## Programa Marco de Investigación e Innovación (2014-2020)



### Excellent Science

### Industrial Leadership

### Societal Challenges

European Research Council (ERC)

Future and Emerging Technologies (FET)

Marie Skłodowska-Curie actions on skills, training and career development

European research infrastructures

≈ 1.400 M€

- ICT
- Nanotechnology
- Biotechnology
- Advanced Materials
- Advanced Manufacturing & Processing
- Space
- Access to Risk Finance
- Innovation in SMEs

Health, demographic change and wellbeing

Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy;

Secure, clean and efficient energy;

Smart, green and integrated transport;

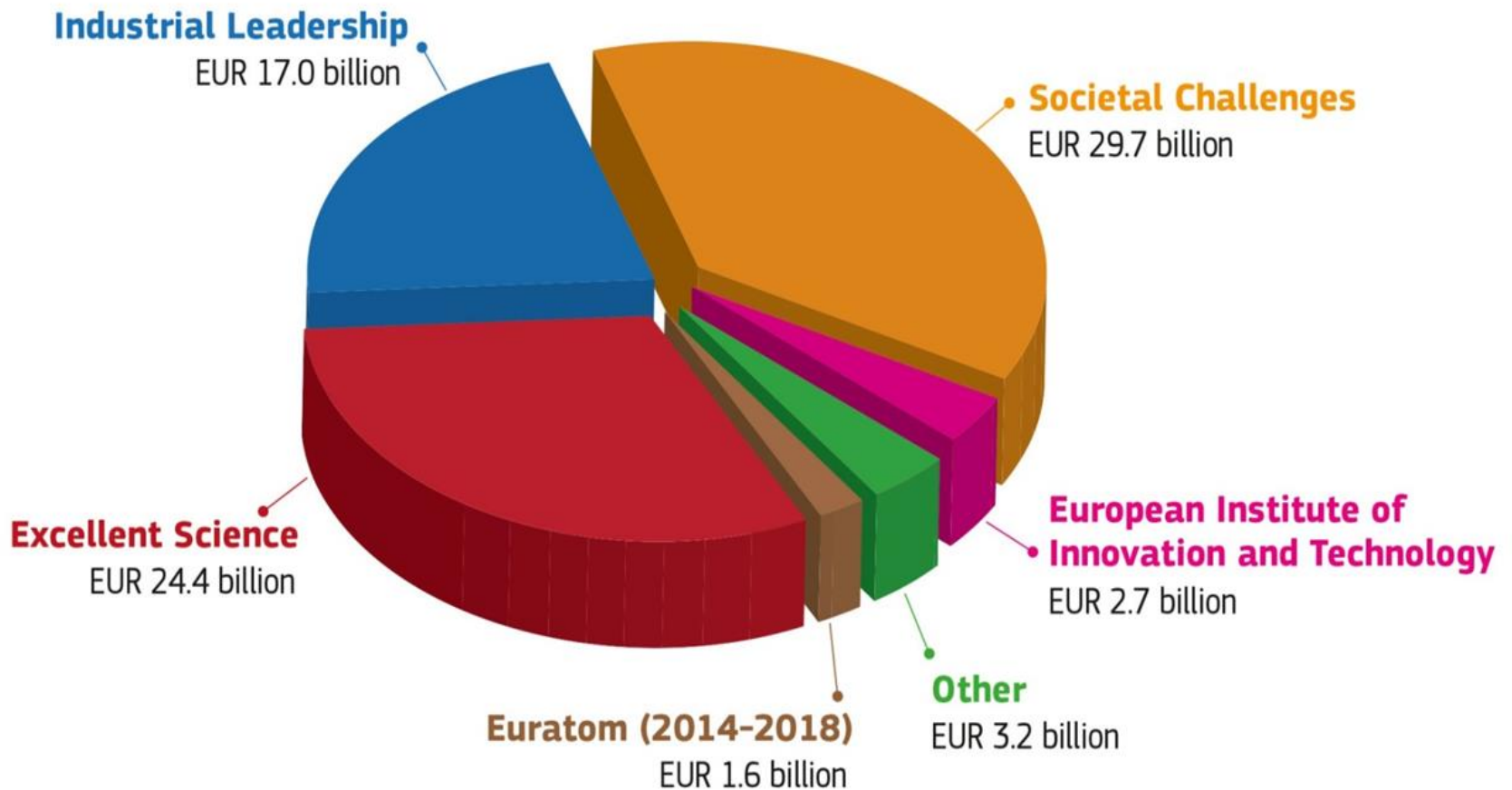
Climate action, environment, resource efficiency and raw materials

Europe in a changing world-Inclusive, innovative and reflexive societies

Secure Societies: Protecting freedom and security of Europe and its citizens

# Horizonte 2020

**HORIZON 2020 BUDGET (in current prices)**  
**€ 79 billion from 2014 to 2020**



# Horizonte 2020

By 1 December 2014 the first 100 calls had closed. What can we tell about the popularity of the programme, the success of SMEs, the degree to which the programme has attracted newcomers - both as participants and as expert evaluators - and the proportion of women experts? Answers below

<http://ec.europa.eu/programmes/horizon2020/en/horizon-2020-statistics>



"[Horizon 2020 - first results](#)" (PDF 3MB) presents information on the first 100 calls for proposals.

# Resultados españoles en la convocatoria 2015

## PARTICIPACIÓN

- Alta participación. Las entidades españolas han participado en **142 de las propuestas presentadas**
- Entidades españolas en el 44,4% de las propuestas
- 44 propuestas coordinadas por españoles (13,8% del total)

## Condiciones de contorno

Las condiciones de contorno no eran favorables:

- Reducción del presupuesto de las convocatorias en un 10%, debido a los recortes del Fondo Europeo de Inversiones Estratégicas – EFSI (Plan Juncker)
- Reducción de la tasa de éxito de la convocatoria 2015 (13%), a la mitad respecto al 7PM y en 8 puntos respecto a la convocatoria 2014 (21%)

# Resultados españoles en la convocatoria 2015

Aún así, los resultados han sido muy positivos, con un retorno del **11,7% UE-28, superior a la convocatoria 2014**

- 19 proyectos aprobados con participantes españoles (45, 2% del total)
- 6 de ellos coordinados por entidades españolas (aumento del liderazgo)
- España es el 4º país por retorno medio, detrás de FR, IT y DE y por delante de países como UK o NL
- España es el 3º país por retorno en las convocatorias de GALILEO y COMPET





# Resultados españoles en la convocatoria 2015

## Lista de entidades españolas con proyectos aprobados

- AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS
- ALTAIS CARTOGRAFIA Y URBANISMO SL
- ARQUIMEA INGENIERIA, S.L.
- AVS ADDED VALUE INDUSTRIAL ENGINEERING SOLUTIONS SL
- CENTRO DE ESTUDIOS E INVESTIGACIONES TECNICAS DE GUIPUZCOA
- CENTRO PARA EL DESARROLLO TECNOLOGICO INDUSTRIAL
- DEIMOS SPACE, S.L.U
- EADS CASA ESPACIO SL
- FUNDACIO PRIVADA CREAMFUTUR
- FUNDACION TECNALIA RESEARCH AND INNOVATION
- GEONUMERICS, S.L.
- GMV AEROSPACE AND DEFENCE SA
- GOING GREEN SL
- HEWLETT PACKARD ESPAÑOLA, S.L.
- IBERICA DEL ESPACIO, S.A.
- IKOR TECHNOLOGY CENTRE SL
- INAER HELICOPTEROS SA
- INDRA SISTEMAS, S.A.

- INGENIERIA Y ECONOMIA DEL TRANSPORTE, S.A.
- INGENIERIA Y SOLUCIONES INFORMATICAS DEL SUR, S.L.
- INSTITUT MUNICIPAL D'INFORMATICA (INSTITUTO MUNICIPAL DE INFORMATICA)
- INSTITUTO NACIONAL DE TECNICA AEROESPACIAL (INTA)
- NEBUSSENS SL
- PILDO CONSULTING SOCIEDAD DE RESPONSABILIDAD LIMITADA
- SENER INGENIERIA Y SISTEMAS, S.A.
- THALES ALENIA SPACE ESPAÑA, S.A.
- UNIVERSIDAD AUTONOMA DE BARCELONA (UNIVERSITAT AUTONOMA DE BARCELONA)
- UNIVERSIDAD COMPLUTENSE DE MADRID
- UNIVERSIDAD DE BARCELONA (UNIVERSITAT DE BARCELONA)
- UNIVERSIDAD DE MALAGA
- UNIVERSIDAD DEL PAIS VASCO / EUSKAL HERRIKO UNIBERTSITATEA
- UNIVERSIDAD POLITECNICA DE CATALUÑA
- UNIVERSITAS NEBRISSENSIS, S.A.

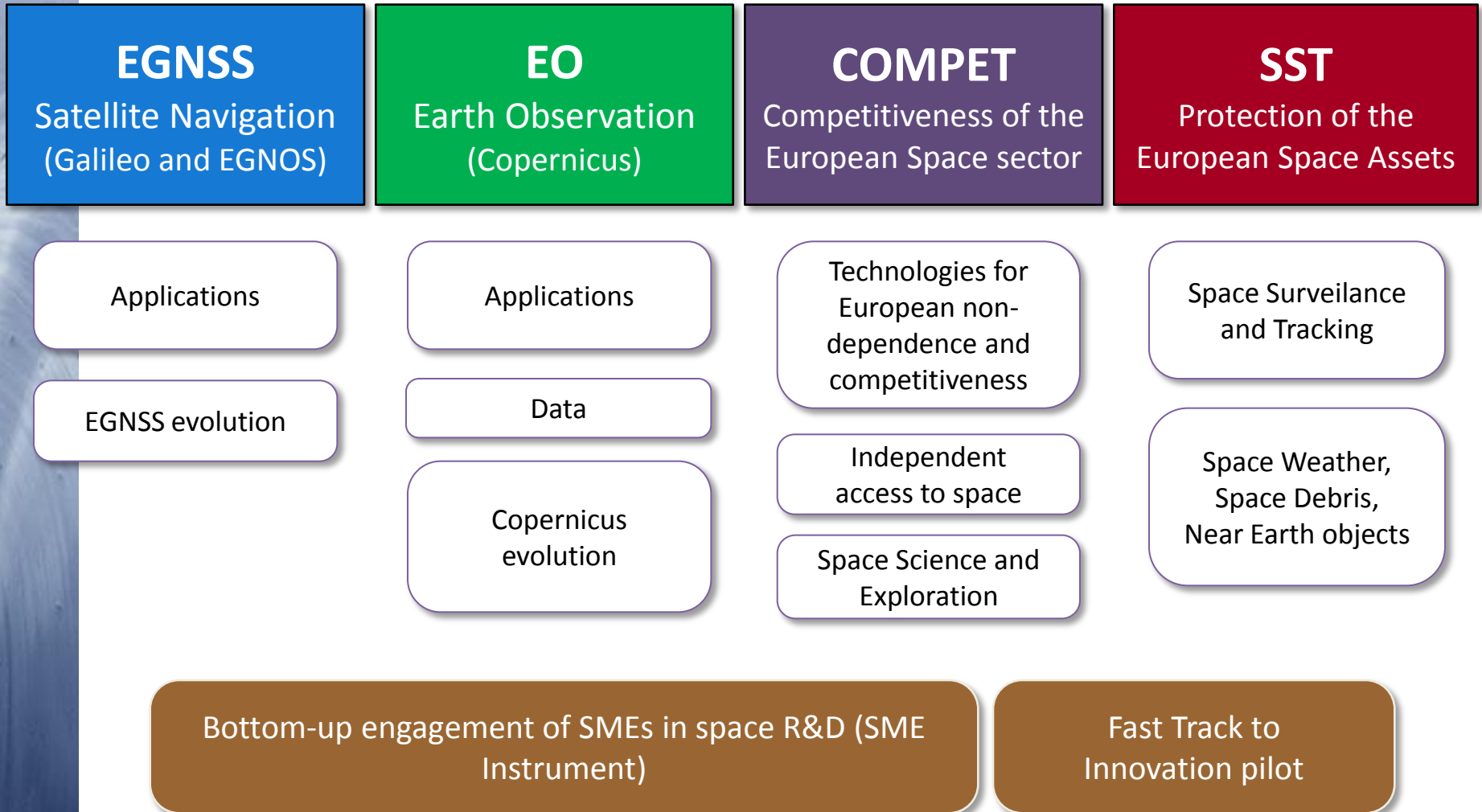
# Resultados Cataluña: 2014-2015

## Cataluña es la segunda región con mayor número de propuestas financiadas en H2020 Espacio

- Participación: 96 propuestas con participantes catalanes, 20 de ellas coordinadas por entidades catalanas
- Resultados: 21 propuestas financiadas, 4 de ellas coordinadas
- **Propuestas aprobadas/ presentadas: 21.9%. Superior a la tasa de éxito media europea**
- Subvención aprobada: 5.57 M€.
- Participación media: 265 K €



# Horizon 2020 Space Work Programme 2016-2017



# Horizon 2020 Space Work Programme 2016-2017

## EGNSS

Galileo & EGNOS applications and infrastructure

### Calls for proposals:

- EGNSS applications

### Other actions:

- Evolution of EGNSS infrastructure, mission and services

## EO

Earth Observation applications and services

### Calls for proposals:

- EO downstream applications
- EO downstream services for public authorities
- Evolution of Copernicus services
- EO "big data" shift

## COMPET

Space Technologies  
Space Science  
Space Exploration  
(incl. Space Weather)

### Calls for proposals:

- Critical space technologies
- Electrical Propulsion
- Space Robotics
- EO & SatCom technologies
- Scientific Instrumentation
- Scientific Data Exploitation
- Space Weather
- Space Portal
- Technology transfer

## SST

Space Surveillance and Tracking support framework

### Other actions:

- Contribution to the SST support framework
- Improving the performance of SST at European level

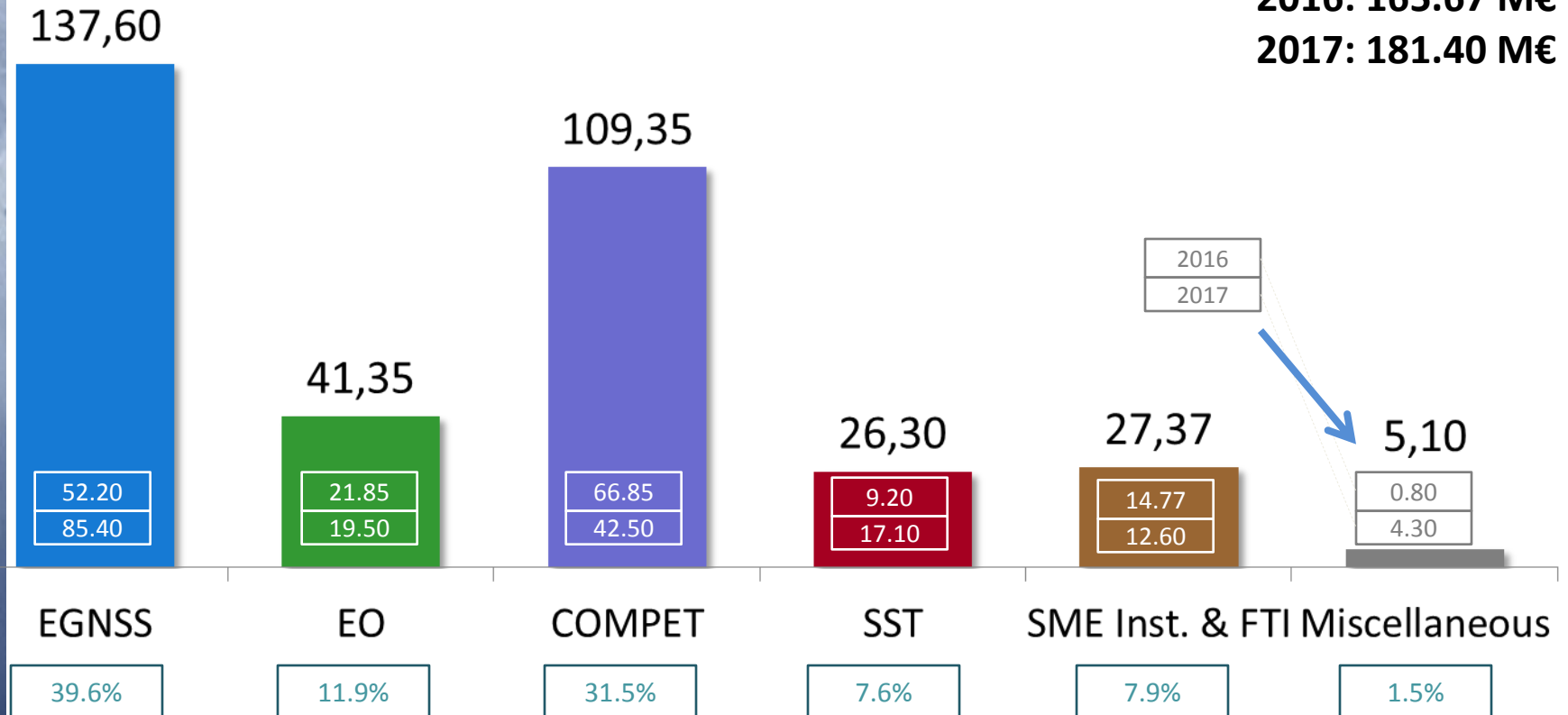
SME Instrument

Fast Track to Innovation 'pilot'

# WP 2016-2017 Indicative budget

LEIT-Space 2016-2017 WP **indicative** budget (figures in M€)  
Calls for proposals + "Other actions"

Total budget  
2016: 165.67 M€  
2017: 181.40 M€



# Horizon 2020 Space

# Implementation calendar

Calls	Opening dates	Deadlines
EO-2016 COMPET-2016	10 November 2015	3 March 2016
GALILEO-2017 EO-2017 COMPET-2017	8 November 2016	1 March 2017

- Call pages  
<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/index.html>
- Work Programme 2016-2017  
[http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016\\_2017/main/h2020-wp1617-leit-space\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-leit-space_en.pdf)
- Guidance Documents for topics EO-3-2016, COMPET-1-2016/2017, COMPET-3-2016 and COMPET-4-2016  
[http://ec.europa.eu/growth/sectors/space/research/horizon-2020/index\\_en.htm](http://ec.europa.eu/growth/sectors/space/research/horizon-2020/index_en.htm)

# ¿Quién puede participar?

## Requisitos

- Mínimo **3 entidades** establecidas en diferentes Estados Miembros (EM) o Estados Asociados (EA)
- Las tres entidades deben ser **independientes**
- Abierto a **terceros países**, respetando las condiciones mínimas de participación
- **Duración** del proyecto, presupuesto y número de socios **a decidir por el consorcio**

## Beneficiarios

- Puede participar cualquier **entidad jurídica** que cumpla con los **requisitos** establecidos en las **Reglas de Participación** y en los **Programas de Trabajo** correspondientes

## Tipo de financiación

- Con carácter general: **Subvenciones**



# ¿Cómo funciona? (Ejemplo topic Call 2015 - H2020 Espacio)

TÍTULO →

OBJETIVO  
ESPECÍFICO

IMPACTO  
ESPERADO

INSTRUMENTO

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

Specific Challenge: Three specific areas of space science where there is a significant underinvestment when compared to the potential scientific return for Europe are the exploitation of astrophysics, comets, and planetary data.

Europe has an impressive track record in space astrophysics, comets and planetary research. Astrophysics missions such as XMM-Newton, Herschel or Planck, and in coming years Gaia, JUICE, EUCLID, CHEOPS or the James Webb Space Telescope are an opportunity for European researchers. The challenge will however be to allow the European astrophysics community to make the best possible use of those missions by supporting space astronomy observation proposals, using archived data, and making comparisons (including calibrations) between different missions, instruments, and between space and ground-based data. Likewise in comets research the challenge will be to allow the European astronomy community to make the best possible use of the current European mission to a comet (Rosetta), in combination with information from international (e.g. NASA, JAXA) missions and ground-based telescope observations. Europe has also a long experience and deep expertise in planetary missions such as Venus Express, or Cassini-Huygens. The utilisation of data set coming from European and international missions will allow the European planetary community to generate new

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).

These activities shall add scientific value through advanced analysis of the data, leading to scientific publications and higher level data products which can be used by other scientists in their studies. This could be done in combination with the development of open source tools for processing and visualisation of astrophysics, comets or planetary data. Enhanced data products should be suitable for feeding back into the ESA archives.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 1.5 million would allow this specific challenge dedicated to astrophysics, comets or planetary data to be addressed appropriately, including through proposals from small teams. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

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: Research and innovation actions



# Preparación de propuestas. El inicio.....

- Encaja la idea (de forma natural) en algún topic del programa de trabajo?
- ¿A quién necesito? Análisis de los socios **necesarios** para llevar a cabo la idea con éxito
- **Búsqueda de socios**
  - Colaboradores habituales: proyectos, ofertas, subcontratistas...
  - Red de NCPs Espacio: COSMOS
  - Jornadas de Información: Infodays CE, Brokerage events, ...
  - Búsqueda según distintos criterios  
<http://ncp-space.net/space-research/thematic-information/partner-search/>
  - Consorcios/coordinadores de proyectos anteriores en FP7/H2020 (enlaces al final de la presentación)
- **Obtener el compromiso institucional (propio y de los miembros del consorcio)**
- IPRs y temas legales [www.iprhelpdesk.eu](http://www.iprhelpdesk.eu)
  - Acuerdo de confidencialidad y/o exclusividad
  - Análisis de la propiedad intelectual que se necesita/quiere compartir



# TIPO DE FINANCIACIÓN HORIZONTE 2020

- **Research and Innovation Action (RIA):**  
Up to 100% of eligible costs
  - **Innovation Action (IA):**  
Up to 70% of eligible costs  
(exception: up to 100% for non-profit organisations)
  - **Coordination and Support Action (CSA):**  
Up to 100% of eligible costs
  - **Pre-Commercial Procurement (PCP):**  
Governed by participation rules; EO-2-2016 max 90%
- + un 25% de costes indirectos en todos los casos**

# Horizon 2020 Space Work Programme 2016-2017

## EGNSS

Galileo & EGNOS applications and infrastructure

### Calls for proposals:

- EGNSS applications

### Other actions:

- Evolution of EGNSS infrastructure, mission and services

## EO

Earth Observation applications and services

### Calls for proposals:

- EO downstream applications
- EO downstream services for public authorities
- Evolution of Copernicus services
- EO "big data" shift

## COMPET

Space Technologies  
Space Science  
Space Exploration  
(incl. Space Weather)

### Calls for proposals:

- Critical space technologies
- Electrical Propulsion
- Space Robotics
- EO & SatCom technologies
- Scientific Instrumentation
- Scientific Data Exploitation
- Space Weather
- Space Portal
- Technology transfer

## SST

Space Surveillance and Tracking support framework

### Other actions:

- Contribution to the SST support framework
- Improving the performance of SST at European level

SME Instrument

Fast Track to Innovation 'pilot'

# Earth observation

## COPERNICUS SERVICES

<http://www.copernicus.eu/main/overview/>

Address six main thematic areas:

- Land monitoring
- Marine monitoring
- Atmosphere monitoring
- Emergency management
- Security
- Climate change

Data access

- Copernicus users can also have a direct access to satellite data

## COPERNICUS SPACE COMPONENT

- Earth Observation Satellites  
<http://www.copernicus.eu/main/satellites>



## NEW COPERNICUS Brochure

<http://www.copernicus.eu/main/Brochure>



# EO-1-2016: Downstream applications

*Proposals may address a wide variety of applications stemming from the use of Earth Observation and its smart integration with other related technologies...*

*The outcome of the projects 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...*

*Corresponding validations and customisations are to be undertaken, and the business case for the application is to be demonstrated...*

*The choice of EO application is left to the proposer...*

**Recommended  
funding requested**  
**Type of action**

**1 to 2 M€**  
**Innovation Actions**

# EO-2-2016: Downstream services for public authorities

*To launch demand-driven innovation actions by public authorities aiming at customising Copernicus information as part of the solution for their needs...*

*...Application products are expected to adopt open standards for data documentation, data models and services...*

*The choice of Copernicus service and associated downstream EO-based services left to the proposer...*

*Coupling with European Structural and Investment Fund (ESIF) actions could facilitate this process and can ensure continuity*

**Pre-commercial  
Procurement (PCP)**

**REUNIÓN CON POTENCIALES INTERESADOS  
CDTI, 26 DE NOVIEMBRE**

# EO-2-2016: Downstream services for public authorities

## Pre-commercial procurement (PCP)

- Definition: Union co-funding to a group of procurers ("buyers group") to undertake together one joint PCP procurement (=one joint call for tender, one joint evaluation of offers, a lead procurer).
- "Buyers group"= at least two independent legal entities (public procurers) established in two different MS or associated countries.
- Individual financial contribution of each procurer to the total budget necessary to jointly finance the PCP.
- Eligible activities include two phases: a) Preparation phase (expected outcome: completed tender documents, signed procurement agreement, confirmation of the lead procurer), b) Execution phase (expected outcome: Procurement and implementation of PCP contacts, validation and comparison of the performance of the competing PCP solutions in real-life operational conditions, dissemination of results)
- *EU contribution = max 90% of the total eligible costs (which include R&D services procured via the joint PCP and the costs of the eligible coordination and networking activities)*

*Full detailed description can be found in the General Annexes 20 – parts D and E of the Work Programme 2016-2017*

# EO-3-2016: Evolution of Copernicus services

*Projects should aim at demonstrating the technical operational feasibility of a specific service evolution proposal*

*The proposers are expected to demonstrate at the proposal stage an active link with the Copernicus service by suitable means...*

*... project should aim at providing a proof-of-concept or a prototype for a proposed evolution of the Copernicus services, respecting the border between Copernicus services and downstream services*

*...should allow to demonstrate the appropriateness to implement the proposed evolution later on at European level, i.e. potentially with operational Copernicus funding*

*...the activity should as well result into one or more possible scenarios how this evolution could potentially be integrated*

**Guidance Document for topic EO-3-2016**

[http://ec.europa.eu/growth/sectors/space/research/horizon-2020/index\\_en.htm](http://ec.europa.eu/growth/sectors/space/research/horizon-2020/index_en.htm)

**Recommended  
funding requested  
Type of action**

**1 to 2 M€  
Research and  
Innovation Actions**



# EO-3-2016: Evolution of Copernicus services

## EO-3-2016 – Guidance document

Designed to further elucidate the research needs as identified in the context of provision of operational services in Copernicus for the benefit of applicants to Horizon 2020

TABLE OF CONTENTS	
GUIDANCE DOCUMENT: RESEARCH NEEDS OF COPERNICUS OPERATIONAL SERVICES.....	1
1. INTRODUCTION.....	4
2. COPERNICUS R&D NEEDS IN THE WIDER H2020 EO CONTEXT.....	4
3. COPERNICUS PROGRAMME EVOLUTION.....	5
4. TIMING CONSIDERATIONS – H2020 AND COPERNICUS EVOLUTION.....	5
5. PROCESS FOR ESTABLISHING SPECIFIC COPERNICUS RESEARCH NEEDS.....	7
6. IDENTIFIED NEEDS OF OPERATIONAL COPERNICUS SERVICES.....	7
6.1. Marine Environment Monitoring Service.....	7
6.1.1. Solving ocean dynamics at kilometric resolution.....	8
6.1.2. Designing future observing systems and related assimilation methods.....	8
6.1.3. Developing seamless information chains linking dynamics, biogeochemistry and ecosystem essential variables.....	8
6.1.4. Seamless interactions between CMEMS and coastal monitoring systems.....	9
6.1.5. Preparing the new generation of data products.....	9
6.1.6. Verifying, validating and estimating quality/uncertainties of products.....	10
6.2. Land Monitoring Service (pan-European and local land).....	10
6.2.1. Coastal monitoring, i.e. linkage and possible integration of land and marine information services.....	10
6.2.2. LCLU mapping and change mapping based on integrated radar and multi-spectral data.....	10
6.2.3. Automated change monitoring based on Sentinel data time series.....	11
6.2.4. Improved permanent grassland identification methods.....	11
6.2.5. Crop area and crop status monitoring.....	11
6.2.6. Methodology to provide yearly incremental updates in HRL layers.....	12
6.2.7. Feasibility of geo-hazards as a local component.....	12
6.3. Global Land Monitoring Service.....	12
6.3.1. High volume data processing lines.....	12
6.3.2. Automated change detection and monitoring based on Sentinel data time series.....	12
6.3.3. Multi-source data integration.....	13
6.4. Atmosphere Monitoring Service.....	13
6.4.1. Up-to-date Anthropogenic emissions estimates.....	13
6.4.2. Data assimilation and future Sentinels.....	13
6.4.3. Coupling and downscaling methods for air quality modelling and forecasting.....	14
6.4.4. Quantifying uncertainties for atmospheric composition forecasts and hindcasts.....	14
6.4.5. Integrated soil-vegetation-atmosphere modelling and data assimilation.....	14
6.4.6. Monitoring and forecasting pollens.....	14
6.5. Climate Change Service.....	14
6.5.1. Climate Prediction.....	14
6.5.2. Climate modelling at high resolution.....	15
6.5.3. Climate and environmental observations.....	15
6.5.4. C3S key data products.....	15
6.6. Emergency Management Service.....	15
6.6.1. "Operationability" of crowd sourcing for the EMS.....	15
6.7. Security Service.....	15
6.7.1. Automation of information extraction for large areas.....	16
6.7.2. Dissemination of EO based products.....	16
6.7.3. Integration of EO derived information with other data sources.....	16
6.7.4. Improved sensor systems to more timely detection of difficult targets (small, non-metallic) and their parameters.....	16
6.7.5. Increased integration of multi-sensor and intelligence data for improving detection rates and identification of targets.....	16
6.7.6. Improved and automated processes for EO-data supply.....	17
6.8. Cross-cutting issues and priorities identified.....	17
6.8.1. Stimulating integration of EO data in business processes of Member States in the context of reporting requirements for specific EU legislation.....	17
6.8.2. Stimulating wider use of EO data processing models.....	18
6.8.3. Open dynamic Testportal/Testbed to test new EO products/information.....	18
6.8.4. Stimulating wider research of publication big, linked open Earth Observation data.....	18
6.8.5. Stimulating research development EO Body of Knowledge.....	19

# Earth observation

## Earth observation calls for proposals: summary

'Space' WP 2016/2017		
	2016	2017
Call for proposals	Indicative budget (M€)	Indicative budget (M€)
EO-1-2016/2017: <b>Downstream applications</b>	<b>9.85</b>	<b>12.0</b>
EO-2-2016: <b>Downstream services for public authorities</b>	<b>3.0</b>	-
EO-3-2016: <b>Evolution of Copernicus services</b>	<b>9.0</b>	-
EO-4-2017: <b>EO Big Data Shift</b>	-	<b>7.5</b>
<b>Sub-total EO-2016/2017</b>	<b>21.85</b>	<b>19.5</b>
COMPET-2-2017: <b>Competitiveness in Earth observation mission technologies</b>		<b>7.0</b>
<b>Total EO related 'Space' (2016/2017)</b>	<b>21.85</b>	<b>26.5</b>

# COMPET 2016: Competitiveness of Space Technology

## COMPET-1-2016: Technologies for European non-dependence and competitiveness

“Non-dependence” refers to the possibility for Europe to have free, unrestricted access to any required space technology.

List of actions for 2015-2017: high level specifications and key requirements

*Activities shall address technologies identified on the Joint EC-ESA-EDA Task Force list of Actions 2015-17*

- *U14 - Active discrete power components*
- *U18 - Enhanced performance and space qualified detectors*
- *U19 - High speed DAC-ADC based on European technology*
- *U20 - Very high performance microprocessors*
- *U22 - ASICs: Deep Sub-Micron (DSM)*
- *N27 - RF components*



### Research and Innovation Actions

Recommended funding requested: 2 to 5 M€

# COMPET-1-2016: Technologies for European non-dependence and competitiveness

Guidance document: [http://ec.europa.eu/growth/sectors/space/research/horizon-2020/index\\_en.htm](http://ec.europa.eu/growth/sectors/space/research/horizon-2020/index_en.htm)

Excerpt from Critical Space Technologies (actions 2015/2017)

**Excerpt from**  
**Critical Space Technologies**  
**for**  
**European Strategic Non-Dependence**  
**Actions for 2015/2017**  
**V1.16**

**Update for the 2016 Call of Horizon 2020**

July 2015

Labels for Actions	
Description and needed Action	
Estimated Initial TRL:	
Target TRL	
Applicable Mission Class(es)*	
Order of Magnitude of numbers of restricted export licences in the last 10 years for this function	
Order of Magnitude of numbers of restricted export licences in the last 10 years for this function	
Order of Magnitude of numbers of units sold per year worldwide	
Industrial Non-Dependence Concern	
Delegations/Agencies voicing non-dependence concern on the item	
Reference(s):	
Remarks / Justifications	
Date of Entry / Last Date of Change	

Labels for Actions	
Description and needed Action	
Estimated Initial TRL:	
Target TRL	
Applicable Mission Class(es)*	
Order of Magnitude of numbers of restricted export licences in the last 10 years for this function	
Order of Magnitude of numbers of units sold per year worldwide	
Industrial Non-Dependence Concern	
Delegations/Agencies voicing non-dependence concern on the item	
Reference(s):	
Remarks / Justifications	
Date of Entry / Last Date of Change	

Labels for Actions	
Description and needed Action	
Estimated Initial TRL:	
Target TRL	
Applicable Mission Class(es)*	
Order of Magnitude of numbers of restricted export licences in the last 10 years for this function	
Order of Magnitude of numbers of units sold per year worldwide	
Industrial Non-Dependence Concern	
Delegations/Agencies voicing non-dependence concern on the item	
Reference(s):	
Remarks / Justifications	
Date of Entry / Last Date of Change	

Page 11

# COMPET 2016: Competitiveness of Space Technology

## COMPET-2-2016: Maturing satellite communication technologies

The aim of this topic is to demonstrate, in a relevant environment, technologies, systems and sub-systems for satellite communications...

Target → to demonstrate technologies up to TRL 6

- Advanced communication technologies for feeder or service links
- Photonics technologies
- Active antennas building blocks
- Flexible repeater
- Reconfigurable coverages, interference mitigation techniques, etc
- New generation of waveforms and related protocols
- End to end system enablers in telecommunications



### Research and Innovation Actions

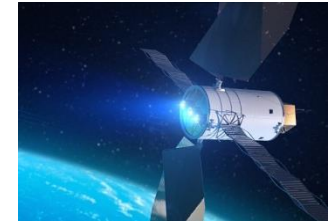
Recommended funding requested: 2 to 4 M€

# COMPET 2016: Competitiveness of Space Technology

## COMPET-3-2016: SRC In-space electrical propulsion and station-keeping

Detailed description provided in the reference document (“Technical Annex”)

- a) Incremental technologies
- b) Disruptive technologies



## COMPET-4-2016: SRC Space Robotics Technologies

Detailed description provided in the reference document (“Technical Annex”)

- a) Space Robot Control Operating System
- b) Autonomy framework Time/Space/Resources planning and scheduling
- c) Common data fusion framework
- d) Inspection Sensor Suite
- e) Modular interfaces for Robotic handling of Payloads
- f) Validation Platforms and Field Tests

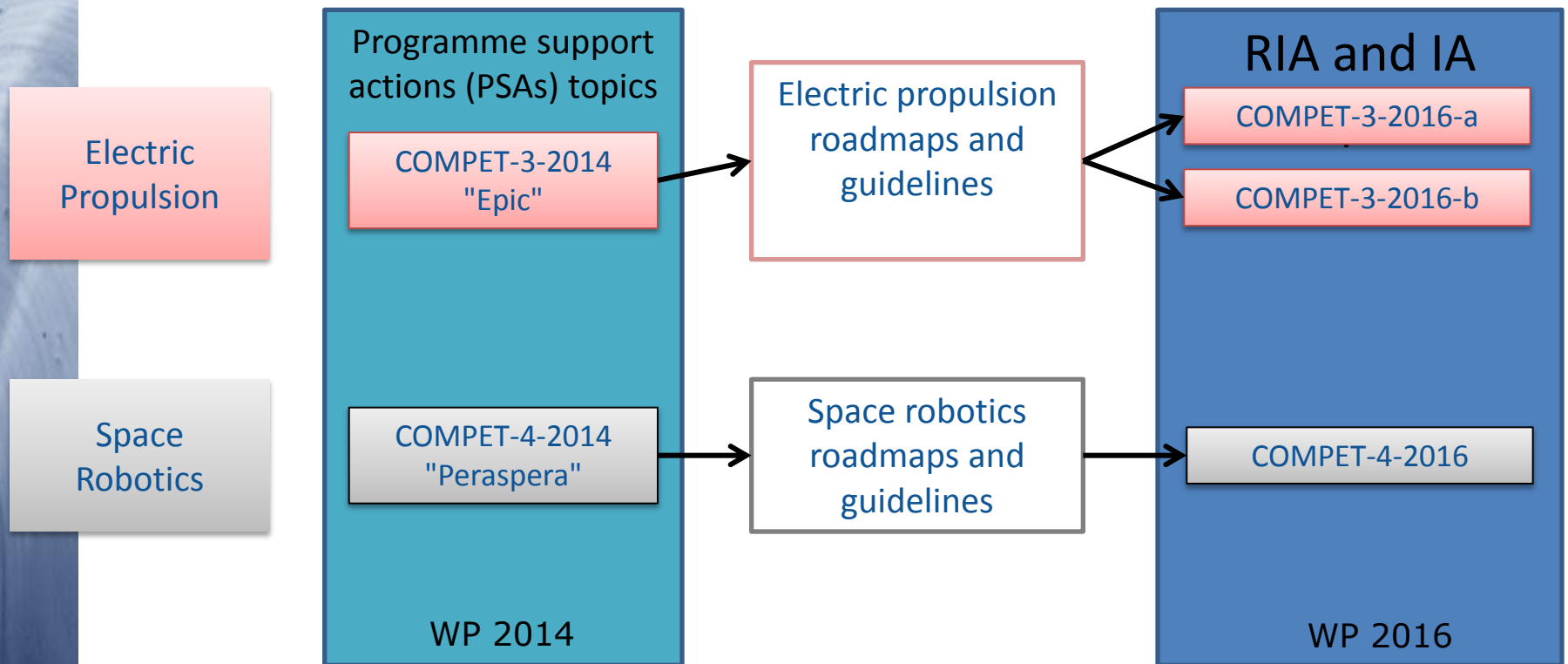


Guidance document:

[http://ec.europa.eu/growth/sectors/space/research/horizon-2020/index\\_en.htm](http://ec.europa.eu/growth/sectors/space/research/horizon-2020/index_en.htm)

# COMPET 2016: Competitiveness of Space Technology

## Strategic Research clusters



# COMPET 2016: Competitiveness of Space Technology

## COMPET-3-2016-a

### In-Space electrical propulsion (EP) and station keeping - Incremental Technologies

*Proposals shall enable incremental advances in technologies for Electric Propulsion systems based on:*

- 1 - Hall Effect Thrusters (HET)*
- 2 - Gridded Ion Engines (GIE)*
- 3 - High Efficiency Multistage Plasma Thrusters (HEMPT)*

**Innovation Actions**  
**Recommended funding**  
HET 7.5 to 11 M€  
GIE 5.5 to 7.5 M€  
HEMPT 4.5 to 5.5 M€

## COMPET-3-2016-b

### In-Space electrical propulsion (EP) and station keeping - Disruptive Technologies

*Proposals on potentially disruptive concepts in of EP which in the long term could change the landscape, addressing:*

- Transversal technologies for disruptive EP systems (not thrusters) → Maximum 1 proposal*
- Technologies devoted to specific disruptive EP thrusters Maximum 4 proposals*

**Research and Innovation Actions**

Recommended funding  
1 to 1.5 M€



# COMPET 2016: Competitiveness of Space Technology

## COMPET-4-2016

### Space robotics technologies

Proposals shall address one of the following six specific robotic building blocks:

- a) Space Robot Control Operating System
- b) Autonomy framework Time/Space/Resources planning and scheduling
- c) Common data fusion framework
- d) Inspection Sensor Suite
- e) Modular interfaces for Robotic handling of Payloads
- f) Validation Platforms and Field Tests

### Research and Innovation Actions

Recommended funding:

Building blocks

a) - e): 3 to 3.5 M€

f): 1 M€

# COMPET 2016: Competitiveness of Space Technology

## Space Exploration and Science

### COMPET-5-2016: Scientific instrumentation

- For science and exploration missions (including planetary exploration missions)
  - Enabling increased cooperation between scientists, engineering teams, industry and SMEs
  - Scientific instrumentation = mission payloads that perform scientific tasks
- From concepts to breadboarding and prototype demonstration
  - Novel and advanced technologies
  - New sensors and other sub-systems that may be used in scientific instrumentation
  - Planned and future European missions, collaboration in the context of third country missions

### Research and Innovation Actions

Recommended funding: 1.5 – 3 M€



# COMPET: Competitiveness of Space Technology 2016-2017

WP 2016	
Call for proposals	Indicative budget (M€)
COMPET-1-2016: Technologies for European non-dependence and competitiveness	14.85
COMPET-2-2016: Maturing Satellite Communication technologies	7.0
COMPET-3-2016: SRC – In-Space electrical propulsion and station keeping	23.0
COMPET-4-2016: SRC – Space Robotics Technologies	18.0
COMPET-5-2017: Scientific instrumentation	3.0
<b>Total COMPET-2016</b>	<b>65.85</b>
Other actions	Indicative budget (€ million)
Activity 7 - Engineering support by ESA	1.0

WP 2017	
Call for proposals	Indicative budget (M€)
COMPET-1-2017: Technologies for European non-dependence and competitiveness	15.0
COMPET-2-2017: Competitiveness in Earth observation mission technologies	7.0
COMPET-3-2017: High speed data chain	10.0
COMPET-4-2017: Scientific data exploitation	5.0
COMPET-5-2017: Space Weather	3.0
COMPET-5-2017: Space portal	0.5
COMPET-6-2017: Technology transfer and business generators	1.0
<b>Total COMPET-2017</b>	<b>41.5</b>
Other actions	Indicative budget (€ million)
Activity 11 - Horizon Prize for low cost access to space (4M€ prize from 2020 budget)	-
Activity 18 - Engineering support by ESA	1.0

# Galileo and EGNOS

## Satellite Navigation – Galileo and EGNOS: summary

WP 2016	
Other actions	Indicative budget (M€)
Activity 1 - Galileo Evolution, Mission and Service related R&D activities	<b>3.3</b>
Activity 2 - EGNOS, Mission and Service related R&D activities	<b>0.9</b>
Activity 4 - GNSS evolution, infrastructure-related R&D activities	<b>48.0</b>

WP 2017	
Call for proposals	Indicative budget (M€)
GALILEO-1-2017: EGNSS Transport applications	<b>14.5</b>
GALILEO-2-2017: EGNSS mass market applications	<b>9.0</b>
GALILEO-3-2017: EGNSS professional applications	<b>8.0</b>
GALILEO-4-2017: EGNSS awareness raising and capacity building	<b>1.5</b>
<b>Total GALILEO-2017</b>	<b>33.0</b>
Other actions	Indicative budget (€ million)
Activity 12 - GNSS Evolution, Mission and Services related R&D activities	<b>3.4</b>
Activity 13 - EGNOS, Mission and Service related R&D activities	<b>0.5</b>
Activity 15 – GNSS evolution, infrastructure-related R&D activities	<b>48.5</b>

# Satellite Navigation – Other Actions 2016

## Galileo Evolution, Mission and Services related R&D

- New and innovative mission concepts to ensure Galileo 2G fulfils evolving users' needs
- Evolution of the currently defined services
- New Galileo services
  - Innovative mission concepts
  - Public Regulated Service
  - Search and Rescue



## EGNOS Mission and Services related R&D

- Evolution of the currently provided services
  - Open Service
  - Safety of Life
  - EGNOS Data Access Service (EDAS)
- New EGNOS services
  - Extension of the service coverage area
  - Extension of the Safety of Life service to other user communities than civil aviation
  - Exploitation of existing band-width, so that additional messages can be broadcast (in L1 and in the future in L5)



# Satellite Navigation - Call for proposals 2017

## GALILEO-1-2017: EGNSS Transport applications

- Clear intention and rationale to commercialize the products and services developed, including a business plan
- Exploitation of the distinguishing features of EGNOS and Galileo signals and operational advantages
- Implementation of EGNSS based pilot projects and end-to-end solutions
- Standards, certification, legal and societal acceptance
- Exploitation of synergies with other positioning and navigation systems and techniques

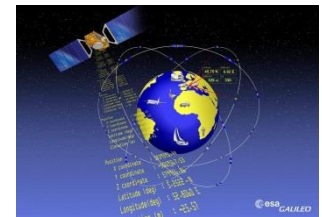
- Aviation
- Road
- Maritime
- Rail



## GALILEO-2-2017: EGNSS mass market applications

- Clear intention and rationale to commercialize the products and services developed, including a business plan
- Exploit the availability of GNSS enabled mass market devices
- Pay attention to consumer needs, behaviour and lifestyle
- Consideration to applicable legal frameworks and ethical issues (privacy and data protection)

- Mobility as a service and Smart Cities
- Internet of things
- Commercial and social Location Based Services (LBS)



# Satellite Navigation - Call for proposals 2017

## **GALILEO-3-2017: EGNSS professional applications**

- Clear intention and rationale to commercialize the products and services developed, including a business plan
- Build on Galileo capabilities: high accurate timing information and authentication services
- Fusion with other data, such as from EO satellites or other in-situ sensors
- Agriculture
- Surveying and mapping
- Timing and Synchronization
- Other professional applications



## **GALILEO-4-2017: EGNSS awareness raising and capacity building**

- Increase the opportunities for collaboration between European and non-European GNSS entities
- Promotion activities should take an active role in generating new ideas, in providing seed financing and in increasing the visibility of EGNSS
- Networking opportunities of centres of excellence and other relevant actors
- Contribute to cooperation schemes established with partner countries worldwide
- Incentives schemes in the form of financial support to third parties for innovative applications



# SST: Space Surveillance and Tracking

## Space Surveillance and Tracking: summary

WP 2016	
Other actions	Indicative budget (€ million)
Activity 5 - <b>Framework Partnership Agreement on the SST Support Framework</b>	-
Activity 6 – <b>SST contribution to the support Framework</b>	<b>1.2</b>
Activity 7 - <b>Improving the Performances of the SST at European Level</b>	<b>8.0</b>

WP 2017	
Other actions	Indicative budget (€ million)
Activity 16 - <b>SST contribution to the support Framework</b>	<b>1.6</b>
Activity 17 - <b>Improving the Performances of the SST at European Level</b>	<b>15.5</b>



# Inducement prize in 2019

## Low cost access to space for small satellites

→ To provide an innovative yet implementable, affordable and financially sustainable

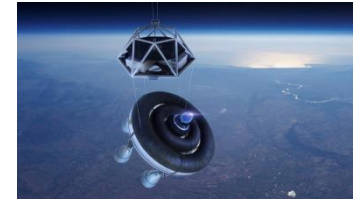
complete launch system to deliver payloads up to 500 kg to LEO orbit

→ Contest launched in 2019; deadline for submission in first quarter 2020

→ Specific award criteria will be published in the rules of the contest to be published on the Participant Portal

→ Common Rules of Contest for Prizes provided in part F of the General Annexes

- Demonstrated applicability of the proposed solution in relevant environment (in a scale that includes subsystem ground testing, significant system demonstrator testing, suborbital launch and orbital LEO launch up to 600 km Sun-synchronous orbit (SSO), with higher achievements scoring higher)
- Expected/demonstrated performances and flexibility in terms of payload mass and available target orbits
- Recurring launch costs, capability to launch repeatedly with the lowest idle time, business plan for sustained operations



## SME Instrument

Continuously  
Open call

- Covers any aspect of the Specific Programme
- Specially: Applications for Galileo and Copernicus, spinning-in and development of certain critical technologies
- 3 phases: Feasibility assessment, R&D, commercialisation
  - Continuously open call, cut-off dates



## Fast track to innovation - pilot

Continuously  
Open call

- Innovation actions linked to any technology field
  - Bottom-up driven logic
- Continuously open call, cut-off dates (first one in 2015)
  - Maximum 5 partners
  - Up to 3 M€ per project



# SME Instrument phases

## PHASE 1

Concept & Feasibility Assessment  
*Idea to concept (6 months)*



The SME will draft an initial **business proposal**.

The European Union will provide  
**€50 000 in funding**  
and business coaching.

## PHASE 3

Commercialisation  
*Prepare for Market Launch*



The SME will receive extensive support to help polish its concept into a marketable product, and have access to **networking opportunities**.

The EU will not provide funding in this phase.

## PHASE 2

Demonstration, Market Replication, R&D  
*Concept to Market-Maturity (1-2 years)*



The SME will further develop its proposal through **innovation activities**, and draft a more developed **business plan**.

The EU may contribute between  
**€0.5 million** and **€2.5 million\***  
and provide business coaching.

# SME Instrument and Fast Track to Innovation

## SME Instrument and Fast Track to Innovation: summary

WP 2016/2017		
	2016	2017
Call for proposals	Indicative budget (€ million)	Indicative budget (€ million)
SMEInst-04-2016-2017: Engaging SMEs in space research and development	<b>11.37</b>	<b>12.60</b>
Fast Track to Innovation	<b>3.40</b>	-



**Imprescindible!!!**  
Leer el apartado “Conditions for this call”  
de cada uno de los bloques

# Overview evaluation +GAP 2016

**3 March: closure Call**

**6-10 June: Ethics screening**  
**5 July: Inform applicants**

*Remote evaluations*  
*11 April – 13 May*

*Central evaluations*  
*17 May – 3 June*

**3 November**  
**GAP ending**

**Receipt of proposals**

**Individual evaluation**

**Consensus group**

**Panel Review**

**Finalisation**

**GAP**

Eligibility check

Individual Evaluation Reports

Consensus Report

Panel report

Final ranked list

All Grant Agreements signed

Allocation of proposals to evaluators

(done remotely)

Evaluation Summary Report

Evaluation results sent to applicants

Cross-readings

Initiation Grant Agreement Preparation

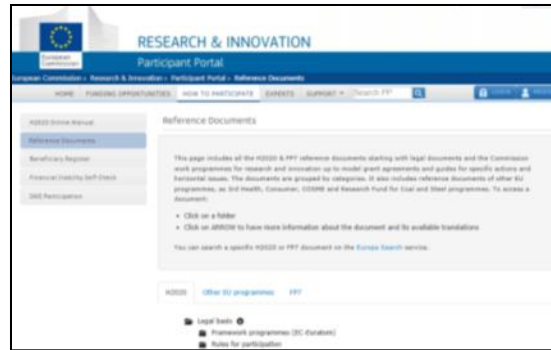
Panel ranked list

**Time-To-Inform (TTI): 5 months**

**Time-To-Grant (TTG): 8 months**

# Proposals preparation

Link to reference documents:  
[http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference\\_docs.html](http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html)



[http://ec.europa.eu/research/participants/data/ref/h2020/call\\_ptef/pt/h2020-call-pt-ria-ia\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/h2020-call-pt-ria-ia_en.pdf)  
[http://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/pse/h2020-guide-pse\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/pse/h2020-guide-pse_en.pdf)



[http://ec.europa.eu/newsroom/dae/document.cfm?doc\\_id=5235](http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=5235)



[http://ec.europa.eu/research/participants/data/ref/h2020/call\\_ptef/ef/2016-2017/h2020-call-ef-ria-ia-csa-2016-17\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/ef/2016-2017/h2020-call-ef-ria-ia-csa-2016-17_en.pdf)

# Lo que un evaluador esperaría ver...

- The **expected impacts listed in the work programme** under the relevant topic;
- **Enhancing innovation capacity** and integration of new knowledge;

¿Cuál será el efecto esperado del resultado del proyecto?

- **Strengthening the competitiveness and growth of companies** by developing innovations **meeting the needs of European and global markets**, and where relevant, by delivering such innovations **to the markets**;
- Any other **environmental and socially important impacts**;

¿Quién quiere esos resultados?  
¿Por qué quieren estos resultados?

- **Effectiveness of the proposed measures to exploit and disseminate the project results** (including management of IPR), to communicate the project, and to manage research data where relevant.

¿Cuál es el plan establecido para gestión de IPR y difusión?

¿Cuál es el plan para dar continuidad al proyecto hasta llegar al mercado?



# Recomendaciones convocatorias 2016

- No sólo leer en detalle el Programa de Trabajo, sino también las **Guías Anexas** para los topics: EO-3-2016, COMPET-1-2016, COMPET-3-2016, COMPET-4-2016
- **Cambios en los subcriterios de evaluación!** Nuevos subcriterios en el Anexo H, de los anexos generales. Impresindibles para escribir una propuesta:  
[http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016-2017/annexes/h2020-wp1617-annex-ga\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016-2017/annexes/h2020-wp1617-annex-ga_en.pdf)
- Descargarse la **Guia de Presentación y Evaluación de Propuestas y la Guia para los Evaluadores:**  
[http://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/pse/h2020-guide-pse\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/pse/h2020-guide-pse_en.pdf)  
[http://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/pse/h2020-evaluation-faq\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/pse/h2020-evaluation-faq_en.pdf)
- **EO-2-2016 (Pre-Commercial Procurement (PCP)- Gran oportunidad.** Muy baja participación en los topics de compra pública. Atraer a compradores públicos, que terminarán utilizando vuestros servicios. Nueva financiación: del 70% al 90% de los costes elegibles

# Recomendaciones convocatoria 2016

- **Cuantificar, cuantificar y cuantificar : objetivos, mercado accesible, “time to market”, volumen de negocio, creación de empleo, barreras, riesgos**
- **Hablar en términos de mercado y plan de negocio a lo largo de toda la propuesta**
- **Trayectoria de explotación de resultados definida y medible**
- **Involucrar a los usuarios finales**
- **Explicar la relación de la propuesta con iniciativas y proyectos anteriores**

# Recomendaciones convocatorias 2016

- Se evaluará la **capacidad operacional de cada socio** en el criterio de implementación, con la información de la propuesta (CVs, publicaciones, referencias, etc). Si los evaluadores consideran que un participante no es “apto” se evaluará la propuesta como si no estuviera incluido (ni el participante ni las actividades)
- Se requieren referencias al **impacto en todas las secciones**
- Lecciones aprendidas: **las propuestas sin un caso de negocio claro han quedado por debajo de umbrales**
- Innovación en los tres criterios (se evaluará tres veces):
  - Excelencia: Innovation potential
  - Impacto: Enhancing innovation capacity
  - Implementación: Innovation management
- Incluir no sólo un plan de diseminación, sino también de comunicación  
[http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm_en.pdf)

**Sólo se financiará uno o dos proyectos en la mayoría de los topics**  
**Es necesario ser los mejores para ser financiados!**

# Research and Innovation Actions/Innovation Actions/ SME instrument - Evaluation criteria

## Excellence

Extent that proposed work corresponds to the topic description in the work programme

- Clarity and pertinence of the objectives
- Soundness of the concept, and credibility of the proposed methodology
- Extent that proposed work is beyond the state of the art, and demonstrates innovation potential (e.g. ground-breaking objectives, novel concepts and approaches, new products, services or business and organisational models)
- Appropriate consideration of interdisciplinary approaches and , where relevant, use of stakeholder knowledge.

## Impact

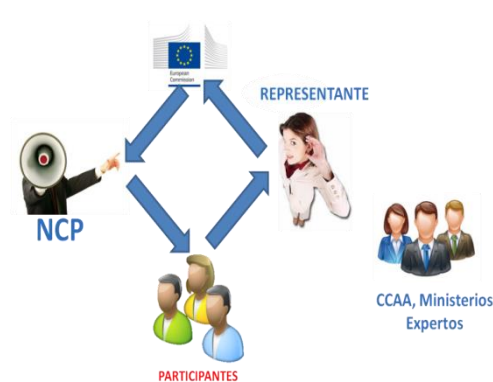
- The expected impacts listed in the work programme under the relevant topic
- Any substantial impacts not mentioned in the WP, that would enhance innovation capacity; create new market opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the environment, or bring other important benefits for society
- Quality of proposed measures to exploit and disseminate project results (including IPR, manage data research where relevant); communicate the project activities to different target audiences (n/a SME Phase 1)

## Implementation

- Quality and effectiveness of the work plan, including extent to which resources assigned in work packages are in line with objectives/deliverables
- Appropriateness of management structures and procedures, including risk and innovation management
- Complementarity of the participants which the consortium as a whole brings together expertise
- Appropriateness of allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project to fulfill that role

# Apoyo de CDTI a los participantes

- Apoyo a lo largo de todo el ciclo de vida de un proyecto: desde la recogida de intereses nacionales para la elaboración del programa de trabajo hasta el seguimiento de los proyectos aprobados
  - Dirigido a **TODO tipo de entidades españolas**: Universidad, OPI, Centro Tecnológico, empresa, etc
  - El CDTI tiene la representación española y los NCP en Retos Sociales y Liderazgo industrial
- **Medidas de CDTI de apoyo a la participación en H2020:**
  - Ayudas directas a empresas para la preparación de propuestas comunitarias (APC+)
  - Oficinas de Proyectos que introduzcan nuevas empresas en H2020
  - Programa de Especialización de Gestores CDTI-SOST en Bruselas
  - Patrocinio de  cursos de postgrado en Universidades
  - Actividades de  difusión y formación (Conferencias de H2020, Seminarios, Infodays, Guía del participante, etc.)



# Apoyo de CDTI a los participantes

## AYUDA A LA PREPARACIÓN DE PROPUESTAS

Preparación de propuestas en Acciones de Investigación e Innovación, Acciones de Innovación y Acciones del Instrumento PYME en fase 2, áreas gestionadas por CDTI.

- Hasta 50.000 €. Ayuda escalonada en función del presupuesto y tipo de participación
- Ayuda sólo reembolsable (tipo Euribor a 1 año) si el proyecto es financiado (máx. dos ayudas por empresa en todo el período de vigencia H2020) o no llega a umbrales
- Requisitos
  - Empresa
  - No haber recibido APC en cuatro años anteriores a solicitud
  - Al menos 200.000 € presupuesto (PYME) o 500.000 € presupuesto (gran empresa).

<http://www.cdti.es/index.asp?MP=7&MS=572&MN=3&TR=C&IDR=600>

# Medidas CDTI de apoyo a la participación

**123 oficinas de proyectos a su disposición:** financiadas por MINECO (convocatorias Redes y Gestores y Centros Tecnológicos) y CDTI

- **50 oficinas de proyectos financiadas por CDTI (2014-2016).** Pago por resultados, ligado al aumento de retorno debido a empresas nuevas y nuevos líderes, que hayan utilizado los servicios proporcionados por el agente intermediario.



# Programa de Especialización de Gestores CDTI-SOST en Bruselas



**Programa de apoyo para el posicionamiento de entidades españolas participantes en programas e iniciativas Europeas de I+D+i (principalmente en H2020).**

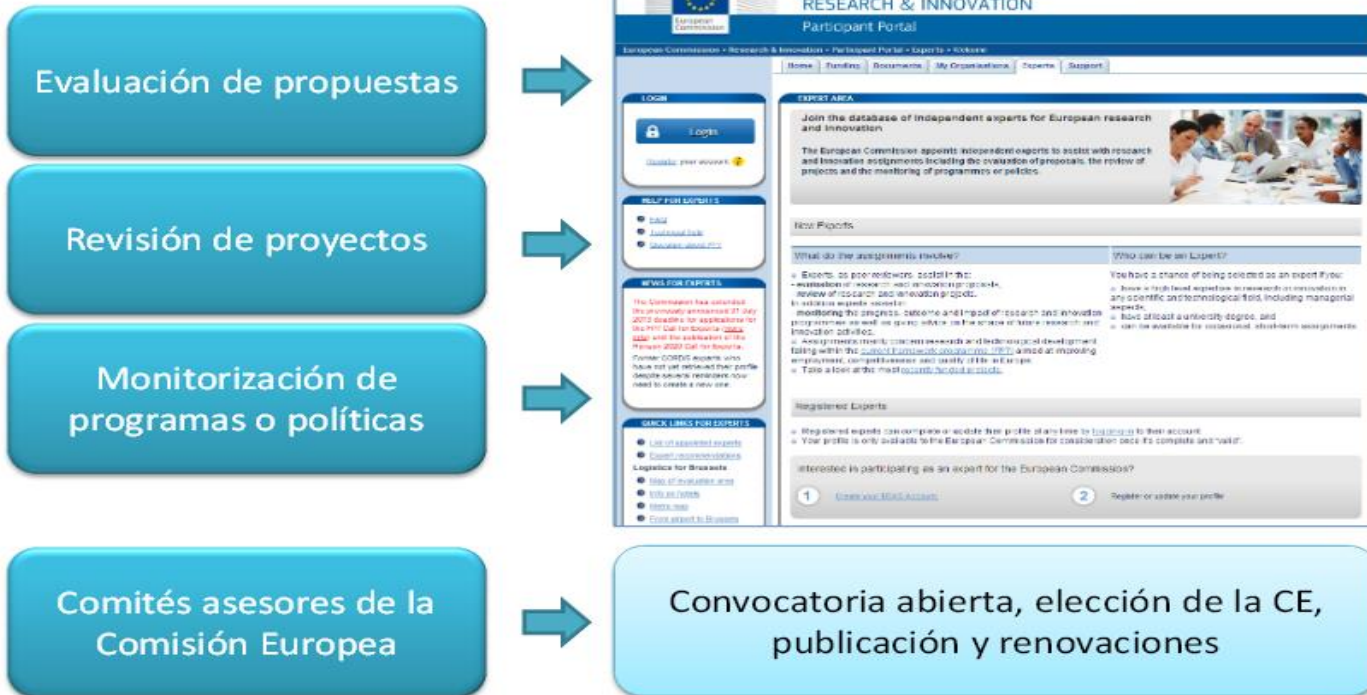
- Cómo** → **Estancia de un gestor (senior) en la SOST** para afianzar su conocimiento del entorno de BRU (contactos con la EC y actores relevantes de su sector) y presencia de la entidad en iniciativas de peso.
- Quién** → **Entidades que YA son participantes en H2020**. NO entidades NI gestores noveles (NO se trata de un curso, ni es de iniciación).
- Cuándo** → Hay **3 ediciones/año de estancias de 2 meses** de duración: Feb-Mar; May-Jun; Oct-Nov.
- Dotación** → **5.000 Euros/gestor/entidad** para gastos de estancia del mismo
- Ejemplo en Space → **EADS-CASA Espacio en primavera 2013**



# Otras recomendaciones

## Participación como experto

<http://ec.europa.eu/research/participants/portal/page/experts#>



**La selección para evaluar las propuestas de la convocatoria 2016 comenzará en Noviembre/Diciembre 2015.**

**Informadnos si os inscribís como expertos!**

# Próximos eventos e información general

- **Infoday Internacional Bruselas. 9-10 Noviembre 2015**  
<http://www.spaceinfoday.eu/h2020-space-infoday/pages/information-day-brussels>
- **Infodays regionales Horizon 2020 Espacio + revisión de propuestas:**
  - 27 de Noviembre: Sevilla. Agencia Andaluza del Conocimiento
  - 14 de Diciembre: Bilbao. Innobasque
  - 15 de Diciembre: UPC, Campus de Castelldefels. Barcelona
- **Reunión asesoramiento preparación de propuestas para coordinadores CDTI, Enero 2016.** (Por favor, contactadnos si vais a coordinar)
- **Inscribirse a las listas de distribución temáticas Horizon 2020 Espacio:**  
[eshorizonte2020.es](http://eshorizonte2020.es)

# Delegación española Horizon 2020 Espacio

No dude en contactar con nosotros para cualquier consulta

## *Comité de Gestión Espacio H2020*



Cristina Garrido  
[cristina.garrido@cdti.es](mailto:cristina.garrido@cdti.es)

José Antonio Gómez  
[gomezsj@inta.es](mailto:gomezsj@inta.es)



## *Puntos Nacionales de Contacto Espacio H2020*



Paloma Dorado  
[paloma.dorado@cdti.es](mailto:paloma.dorado@cdti.es)

Ainara Ripa  
[ripaca@inta.es](mailto:ripaca@inta.es)