

# ITRE Working Group on Horizon 2020

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## SPACE POLICY IN HORIZON 2020

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**ASD-EUROSPACE**  
The Space group in ASD

# What is Eurospace?

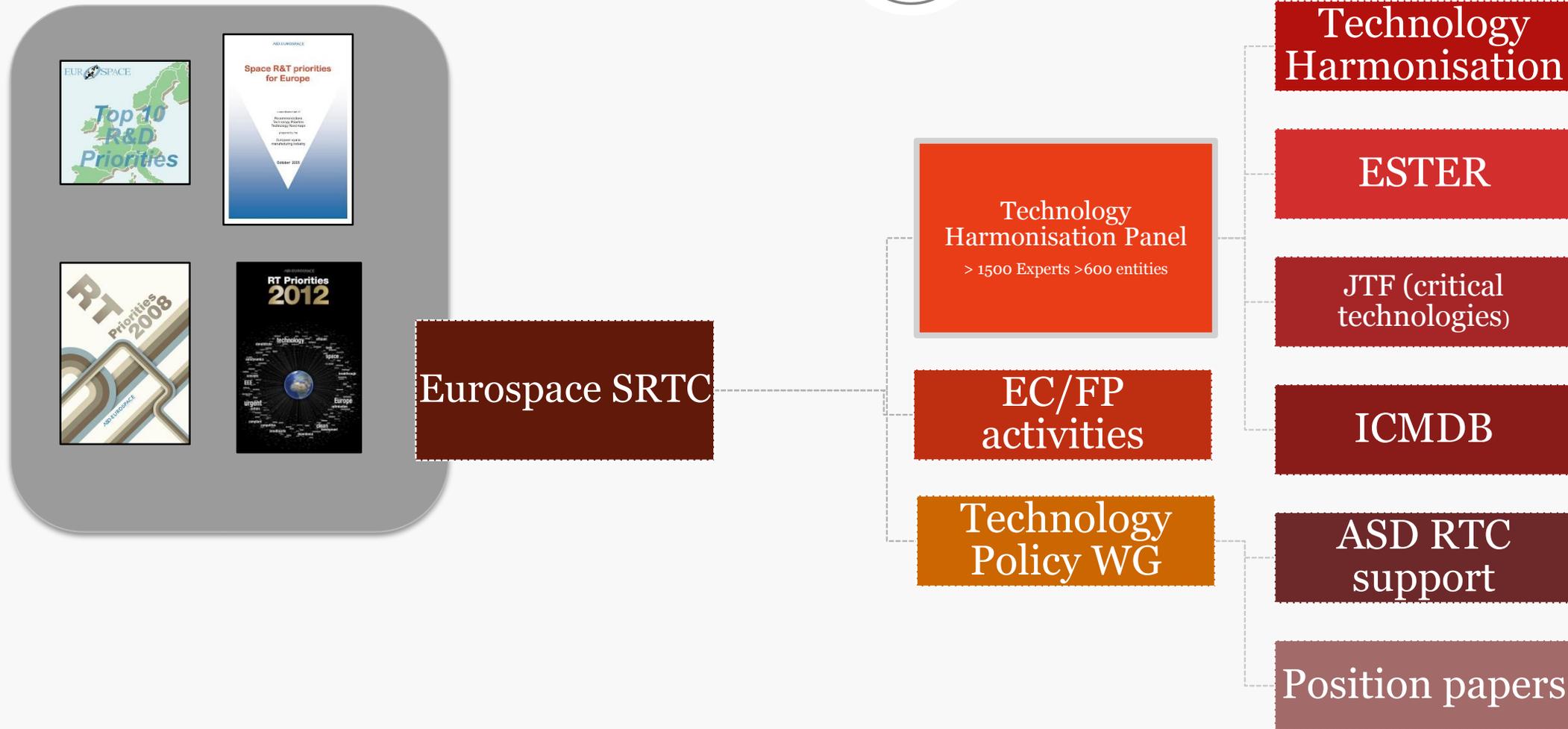
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- Created in 1961
- The association of Space Manufacturing Industry (i.e. the 'upstream' segment)
  - Membership is mainly composed of large companies
    - ✦ Membership is open to all stakeholders involved in the design, development, manufacturing, test and validation of space systems (or relevant parts) in Europe. This includes Research establishments (e.g. NLR and TNO are members) trade associations and SMEs
    - ✦ Eurospace members represent an estimate of >90% of space industry workforce
- Eurospace activities are performed by permanent personnel (the Executive)
  - Paris Office: 5 persons, in charge of management & administration, technology strategy and standardisation, statistics and databases, relationship with ESA and **formalised consultations with industry**
  - Brussels Office: 2 persons, in charge of space policy, relationship with EU (EC, and Parliament)
- Examples of outputs of the Association
  - **Facts and figures** - the annual economic assessment of Space industry in Europe
  - **Space Trends** - the annual authoritative quantitative space markets overview
  - **Space R&T priorities** - the space sector strategic research agenda (every 4 years)
  - **Support to REACH authorisation dossiers** (AoA, SEA, ...) for Hydrazine and Chromates
  - **Support to ECSS standards** establishment and **ISO involvement**

At all levels of its action Eurospace aims at achieving the broadest level of consensus with all parties involved and with the largest possible representation of relevant stakeholders

# Eurospace RT strategy processes

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# Eurospace RT strategy processes

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## Some milestones

***Since 1998***

Eurospace publishes the space Strategic Research Agenda every 4 years

***Since 1999***

Eurospace has promoted the ESA-coordinated harmonisation process

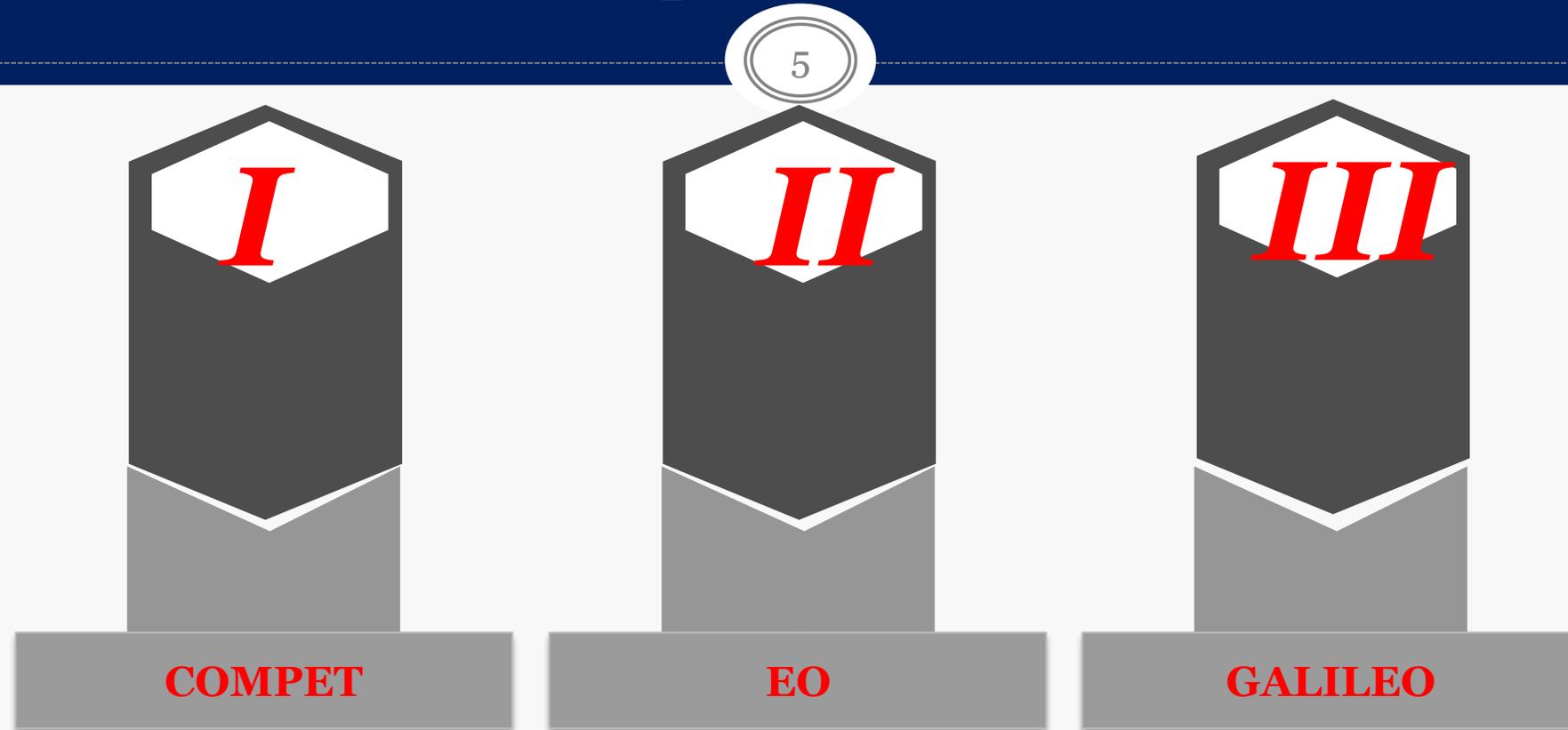
***Since 2006***

Eurospace has established an industry- EC dialogue for the elaboration of the space work programmes

***Since 2012***

Creation of the Technology Harmonisation Panel (THP): largest instance of consultation gathering space experts in Europe

# Feedback on H2020 Space – General considerations

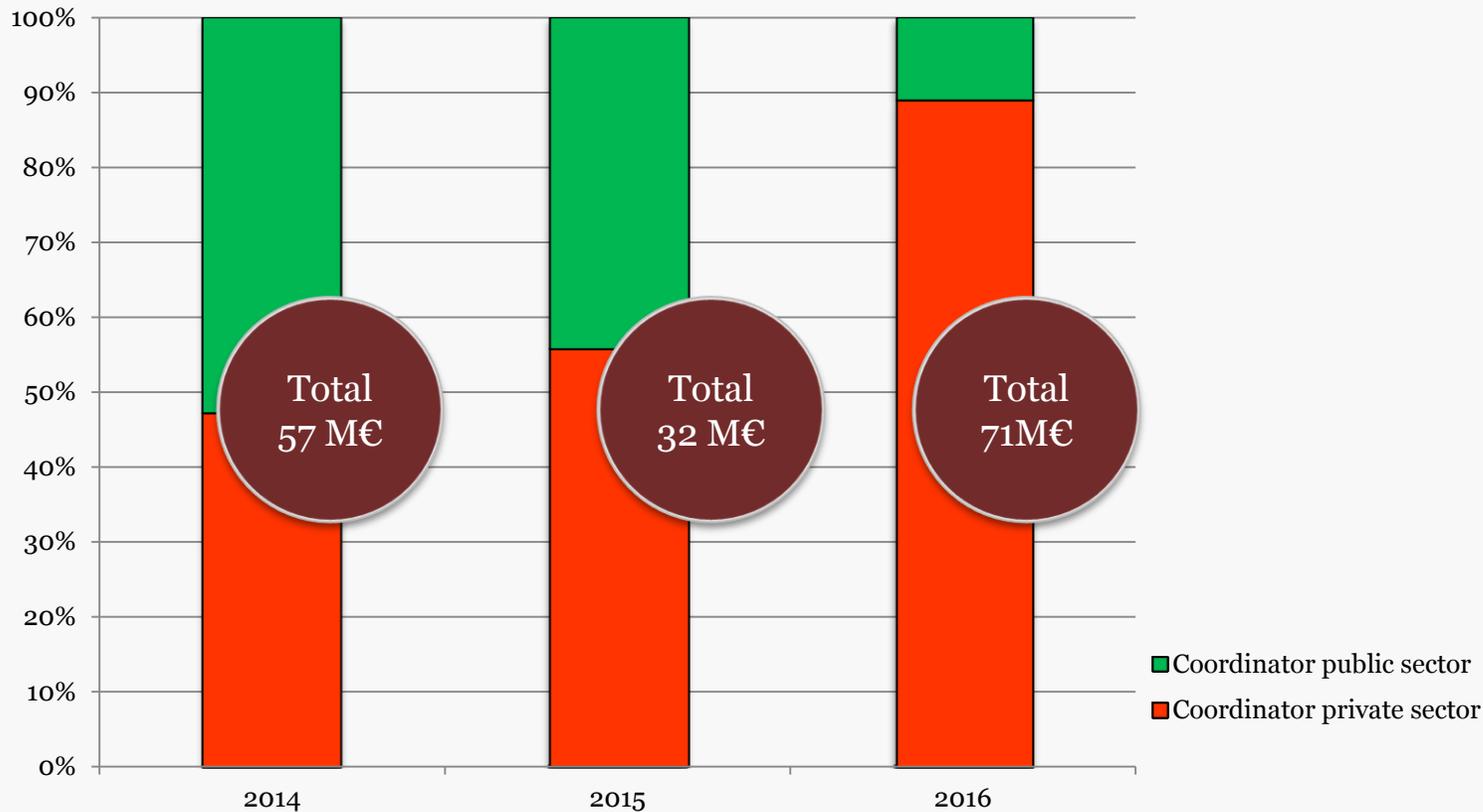


- In Space the Work Programme for H2020 has stabilised its structure with three main areas:
  - two areas to support preparatory **RDT and market uptake for EU flagship programmes** (Earth Observation/Copernicus and GNSS/Galileo)
  - one area for **Competitiveness**, where all other topics are addressed

# Feedback on H2020 Space (2014 to 2017)

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## Considerations on COMPET calls



Status of COMPET selected projects 2014-2016

- The share of selected projects with coordination by the private sector has **steadily increased with every call**
- Positive result, consequence of the **improved work programme contents**

**Good learning curve by EC on industry consultation**

# Feedback on H2020 Space (2014 to 2017)

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## Considerations on COMPET calls

### *Observations*

- Elaborated with increased cooperation with industrial sectors
- Should address in priority core competitiveness topics, such as dependence reduction, technology maturity, competitiveness in telecommunications, export in EO systems...

### *Consequences*

- Low technological maturity levels can have significant consequences:
  - × Contributes to **program cost overruns** and **schedule slippages**
  - × **Detrimental to both industry competitiveness and European programmes' effectiveness**

# Feedback on H2020 Space (2014 to 2017)

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## Considerations on COMPET calls

### *Mitigation*

Considering the relatively limited funding available for space technology development in Europe...

- Question of **effectiveness** is absolutely crucial: **developments** should be appropriately targeted and correctly performed, **avoiding duplications** whenever possible.
- **More efforts in coordination** to be undertaken:
  - Vision of needs and issues to be clarified to ensure maximum effectiveness of public and private investments in space technology
  - establishment of focused initiatives (such as the Strategic Research Clusters approach or JTIs) with well identified objectives
  - Room to be left for industry involvement in the definition of development plans.
  - These efforts shall also provide for synergetic developments and continuity with opportunity driven (bottom-up) research activities

# Feedback on H2020 Space (2014 to 2017)

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Type of concern	Associated feedback/ proposed remediation
Techno. readiness for next steps of Copernicus	Need to be prepared with appropriate RDT activities on payload and data handling/processing. (like GNSS >EGEP) <i>E.g: Carbon monitoring solutions to be found</i>
Budget envelope for COMPET calls	Shall be increased to ensure appropriate coverage of all critical areas, particularly with regard to dependence reduction where in each call only 2/5 activities are funded only.
Content/topics of COMPET calls	<ul style="list-style-type: none"><li>• Shall be appropriately focused in terms of contents (in coordination with industry and based on the Space R&amp;T priorities) and maturity</li><li>• Targeted technologies to present high potential for industry competitiveness</li></ul>
“Granularity” of space calls	<ul style="list-style-type: none"><li>• Often too generic, and lacking appropriate technological guidelines, produce results with limited added value</li><li>• Establishment of precise requirements in technical annexes for each call is recommended (as established in the EPIC calls, or in the JTF related calls)</li></ul>
Maturity level targets	<ul style="list-style-type: none"><li>• Need to be stepped up – in particular on COMPET calls</li><li>• Most activities to be focused on TRL 6 targets (including IOD/IOV real/actual opportunities).</li></ul>
Size of projects	Needs to be increased in specific areas where: <ul style="list-style-type: none"><li>• the whole functional chain needs to be addressed</li><li>• programme continuity is required.</li></ul> <i>E.g: the DSM action requires additional building blocks: HSSL, packaging, assemblies, PCBs, ADC/DAC etc</i>

# Way forward calls 2018-2020

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## MAIN OBJECTIVES

- Technology planning and road-mapping whenever required, with appropriate funding and mechanisms
- Appropriate coordination channels shall be established with other promoters of technology development for space such as ESA, National Agencies and EDA.
- Technology planning and road-mapping whenever required, with appropriate funding and mechanisms
- Competitiveness of the European industrial and technological base (i.e. achieving state of the art technologies and building blocks, including non dependence)
  - > Mechanical building blocks (joints, gimbals, sliprings)
  - > EEE components and electronic assemblies
  - > Materials (REACH mitigation), processes (additive manufacturing, mean manufacturing) and tools (virtualisation, design, simulation)
  - > Payload technologies (EO, TLC): antennas sensors, data chain, optical communications ...

Non-dependence of European solutions, security of supply

Maturity of European technologies (i.e. pushing developments to high TRL, includes In Orbit Demonstration/Validation IOD/IOV)

Availability of funds and mechanisms to build infrastructures and procure systems when required

# General orientations 2018-2020

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- **Mission enabling technologies at medium high TRL and IOD/IOV**
  - Telecommunications, building blocks
- **Data challenges for big data and secure data links**
- **In-space propulsion**
  - EPIC
- **Technology readiness for EU flagship programmes**
  - EO and GNSS (EGEP)
- **Dependence reduction**
  - JTF driven actions: EEE components

# R&T funding post-2020 – Industry views

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## *MEP Marinescu written question to the EC – Joint Undertaking for space*

“[...]Could the Commission envisage the possibility of establishing a **Joint Undertaking for space-related technologies?**”

### Parliamentary questions

25 July 2016

P-003481/2016

#### Answer given by Ms Bieńkowska on behalf of the Commission

In its Space Strategy for Europe initiative, the Commission will analyse options for attracting private sector investments for the development of space technologies. Public Private Partnerships (PPP) are one amongst several instruments which will be considered in this context.

Horizon 2020 introduced PPPs to leverage private investment and innovation based on openness, transparency and effectiveness criteria<sup>(1)</sup>. The 2014 Innovation Investment Package (IIP) established several Joint Technology Initiatives and contractual PPPs<sup>(2)</sup>.

Industry has indicated interest in strengthening dialogue with the Union with a view to fostering competitiveness in space technologies including through new cooperation schemes.

Analysis on PPP options will take into account conditions set by the Treaty and associated funding programmes as well as the need for appropriate relations between the Union and the European Space Agency aiming at optimising European resources dedicated on space technologies.

(1) Article 25 of Regulation (EU) No 1291/2013 of the European parliament and of the Council establishing Horizon 2020 — the framework Programme for Research and Innovation (OJ L 347).

(2) Joint Technology initiatives (JTIs) are based on Article 187 of the Treaty on the Functioning of the European Union and are complemented by contractual PPPs (cPPPs) established by virtue of arrangements between the Commission and industry.

# R&T funding post-2020 – Industry views

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## “JTI for space”- Industry preliminary positions

### ***On a JTI for space research after 2020***

- Use of innovative procurement schemes by EC a priori encouraged by industry
- A “JTI” for space research considered as an opportunity for the industrial community
- The industry is ready to take responsibilities in a JTI-like framework

### ***On MEP Marinescu’s pilot project***

- Important expectations on the Pilot Project to test potential governance schemes
- Both topics proposed (“*Cleaner space through de-orbiting*”/ “*Innovative materials for space systems*”) of interest to industry
- Eurospace stands at the disposal of the EU institutions to provide further analysis on this topic

# Conclusions

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## European space industry has relentless needs to enhance its competitiveness

The European space industry is well organised to:

- identify RDT priorities
- enhance the coordination of RDT programmes at European level.

- Through the ESA Harmonisation process
- In a pro-active process (Eurospace RDT priorities)

European space industry requires a level playing field with its competitors

- Main Spacecraft segment competitors: USA, Russia, China
- Main Launcher segment competitors: Russia and USA

When competitiveness is at stake, industry shall be involved in the programmatic decision-making of RDT programmes

- Funding levels, best use of funds, appropriate instruments
- Identification of key technology areas for:
  - > European Programmes and Commercial markets
  - > Industry processes, and manufacturing

# ITRE Working Group on Horizon 2020

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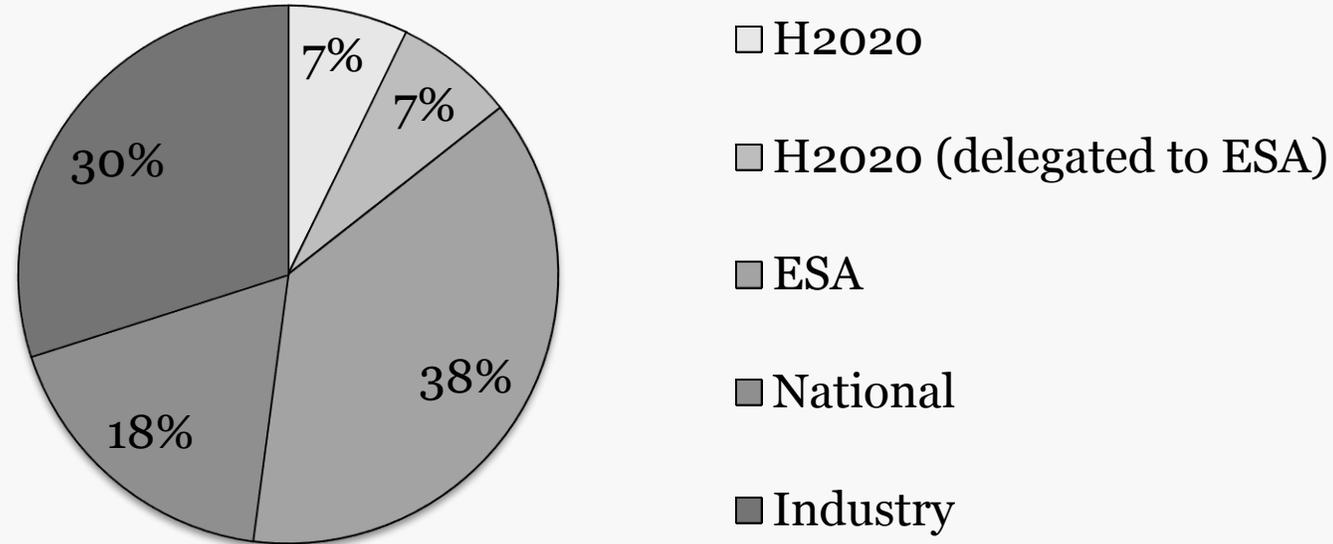
SPACE POLICY IN HORIZON 2020  
ANNEXES

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# European Space RDT funding sources\*

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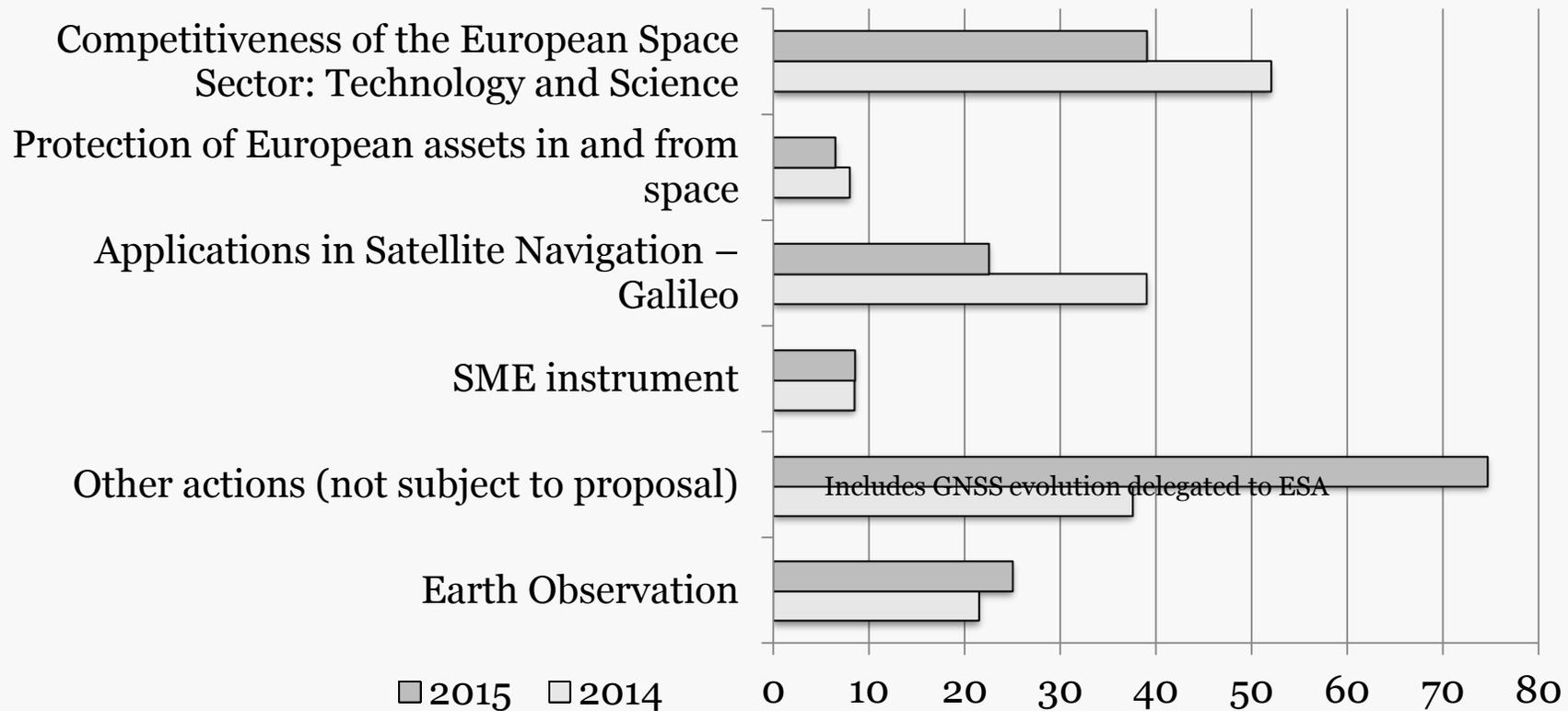
\*(not including Launcher developments)



## Key messages to be derived

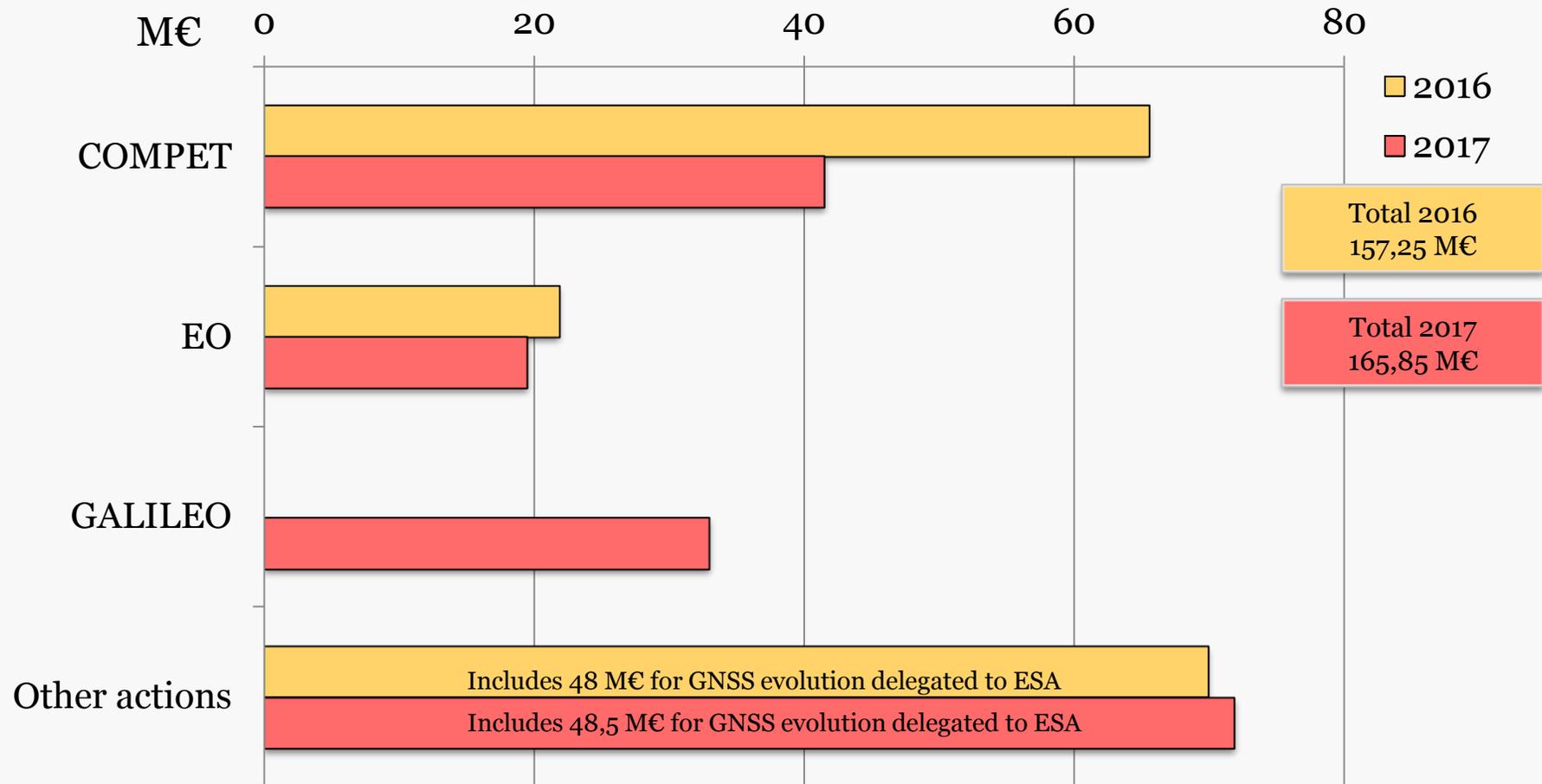
- RDT funding - average 850 M€/year
- Large share is coordinated with industry (through the ESA Harmonisation process, the JTF etc.)
- H2020/Space supports RDT with industry, but only as a fraction of the total

# H2020/Space Calls 2014 2015: Budget overview



# H2020/Space call 2016-2017 overview

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# H2020/Space call 2016-2017 - Open calls details

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Area/Call	Title	call budget	project size	services or technology	instrument
EO-1-2016	Downstream applications	9.85	1-2 Meur	services	IA
EO-2-2016	Downstream services for public authorities	3		services	PCP
EO-3-2016	Evolution of Copernicus services	9	1-2 Meur	services	RIA
COMPET-1-2016	European non-dependence	14.5	2-5 Meur	technology	RIA
COMPET-2-2016	Maturing satellite communications technologies	7	2-4 Meur	technology	RIA
COMPET-3-2016a	SRC Electrical propulsion - Incremental	18	HET: 11M, GIE:7.5M, HEMPT:5.5	technology	IA
COMPET-3-2016b	SRC Electrical propulsion - Disruptive	5	1-1.5 Meur	technology	RIA
COMPET-4-2016	SRC Space Robotics	18	1-3.5 Meur	technology	RIA
COMPET-5-2016	Scientific instrumentation	3			RIA
GALILEO-1-2017	Transport applications	14.5		services	IA
GALILEO-2-2017	mass market applications	9		services	IA
GALILEO-3-2017	professional applications	8		services	IA
GALILEO-4-2017	awareness raising and capacity building	1.5	0.5-1 Meur	awareness	CSA
EO-1-2017	Downstream applications	12	1-2 Meur	services	IA
EO-2-2017	EO Big Data shift	7.5	1-2 Meur	services	RIA
COMPET-1-2017	European non-dependence	15	2-5 Meur	technology	RIA
COMPET-2-2017	EO mission technologies	7	2-3 Meur	technology	RIA
COMPET-3-2017	High speed data chain	10	2-3 Meur	technology	RIA
COMPET-4-2017	Scientific data exploitation	5	1.5 Meur	services	RIA
COMPET-5-2017	Space weather	3	1-1.5 Meur	services	RIA
COMPET-6-2017	Space portal	0.5	0.5 Meur	awareness	CSA
COMPET-7-2017	Technology transfer and business generators	1	1 Meur	awareness	CSA