



#InvestEUresearch



Horizon 2020 Work Programme for Research & Innovation 2018-2020

HORIZON 2020 Space

ESSC London, 27 November 2018

DG GROW – Internal Market, Industry
Entrepreneurship and SMEs
GROW/I1 - Space Policy and Research Unit
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Research and
Innovation



EUROPEAN UNION SPACE PROGRAMMES

MULTIANNUAL FINANCIAL FRAMEWORK

2014-2020



~1.479 M€



~4.291 M€



~7.071 M€

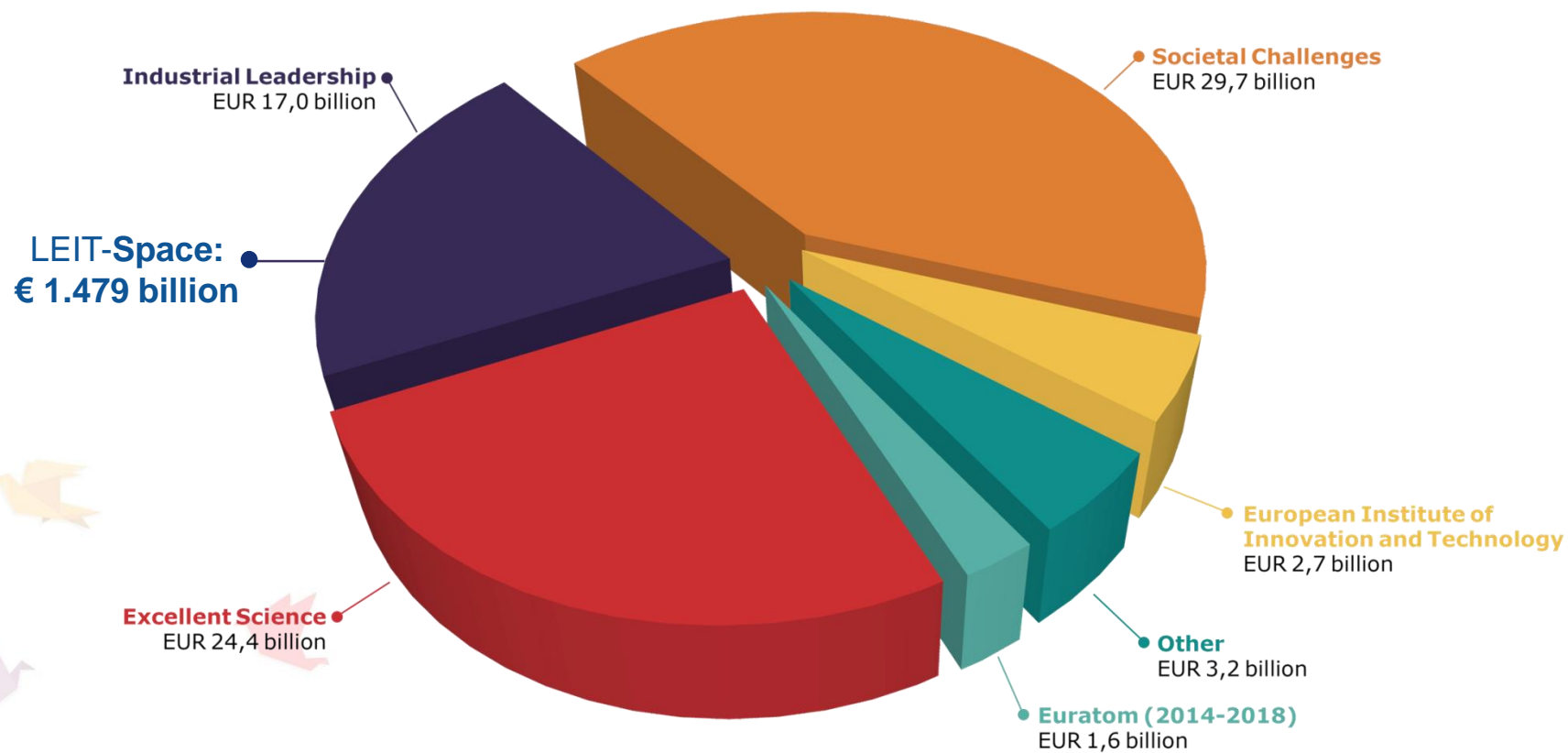


HORIZON 2020

*European Union programme
for research and innovation
for 2014-2020*

SPACE IN H2020

Horizon 2020 budget (in current prices): € 79 billion



LINKS TO OTHER H2020 PARTS

Priority 1

Excellent science

- European Research Council (ERC)
- Future and Emerging Technologies (FET)
- Marie Skłodowska-Curie Actions
- Research infrastructures

Priority 2

Industrial leadership

- Leadership in enabling and industrial technologies (LEIT)
 - Information and Communication Technologies (ICT)
 - Nanotechnologies
 - Biotechnology
 - Advanced manufacturing and Processing
 - **Space**
- Access to risk finance
- Innovation in SMEs

Priority 3

Societal challenges

- SC1 - Health, demographic change and well-being
- SC2 - Food security, sustainable agriculture and forestry, Marine, Maritime and Inland water research, and Bioeconomy
- SC3 - Secure, clean and efficient energy
- SC4 - Smart, green and integrated transport
- SC5 - Climate action, Environment, Resource efficiency and Raw materials
- SC6 - Europe in a changing world – Inclusive, Innovative and Reflective societies
- SC7 - Secure societies – Protecting freedom and Security of Europe and its citizens



**HORIZON 2020
SPACE WORK PROGRAMME
2018-2020**

WP 2018-2020 BUILDING BLOCKS

Maximising benefits of space for society and EU economy

SPACE-EO

- EO market uptake
- Copernicus mission and services evolution

SPACE-EGNSS

- EGNSS market uptake
- EGNSS infrastructure, mission and services evolution

SPACE-BIZ

- Support to space hubs
- Space outreach and education
- EIC Horizon Prize on "Low cost Space Launch"
- InnovFin Space Equity Pilot (ISEP)
- SME-instrument
- FTI – Fast Track to Innovation

Globally competitive and innovative space sector

SPACE-TEC

- Technologies for European non-depend. and competitiveness
- Strategic research clusters
- Generic space technologies
- EO and SatCom technologies
- In-orbit validation/demonstration

SPACE-SCI

- Scientific instrumentation and technologies for exploration
- Scientific data exploitation

Access to space & Secure and safe space environment

SPACE-TEC

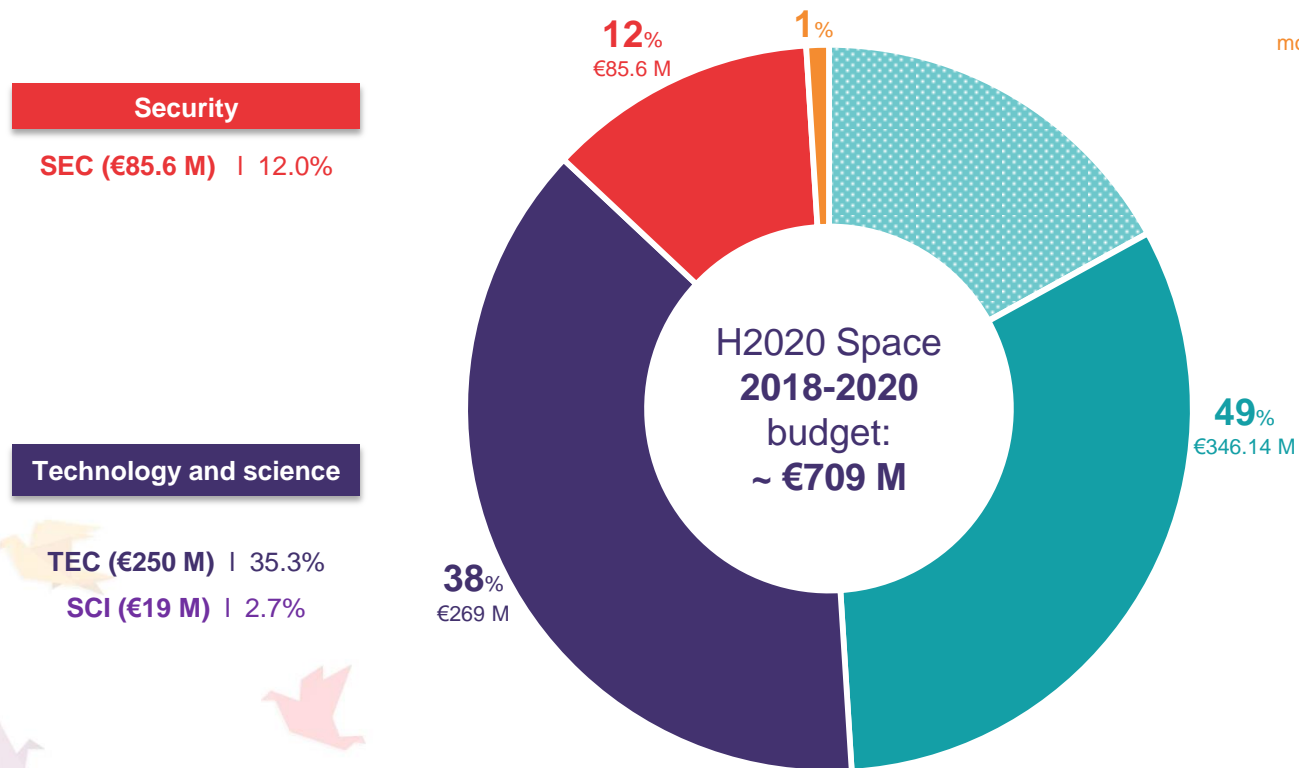
- Access to space

SPACE-SEC

- Space weather
- Exploring concepts for space traffic management
- Space Surveillance and Tracking (SST)
- Near Earth Objects (NEOs)

+ under "other actions": ESA engineering support, REA/GSA project monitoring, studies & communication and support to the Space NCPs network

INDICATIVE BUDGET BREAKDOWN (2018-2020)



Security

SEC (€85.6 M) | 12.0%

Technology and science

TEC (€250 M) | 35.3%

SCI (€19 M) | 2.7%

Miscellaneous (1%)

*Miscellaneous: Proposal evaluation, project monitoring, support to the NCP network; studies and communication activities

Flagships, Entrepreneurship

EGNS (€122 M) | 17.2%

EO (€88 M) | 12.4%

BIZ (€136.14 M) | 19.2%



EARTH OBSERVATION

NOTE:
Work programme update published 25 July 2018!

Space call 2019: € 24 million;
(2018-2020: € 88 million)

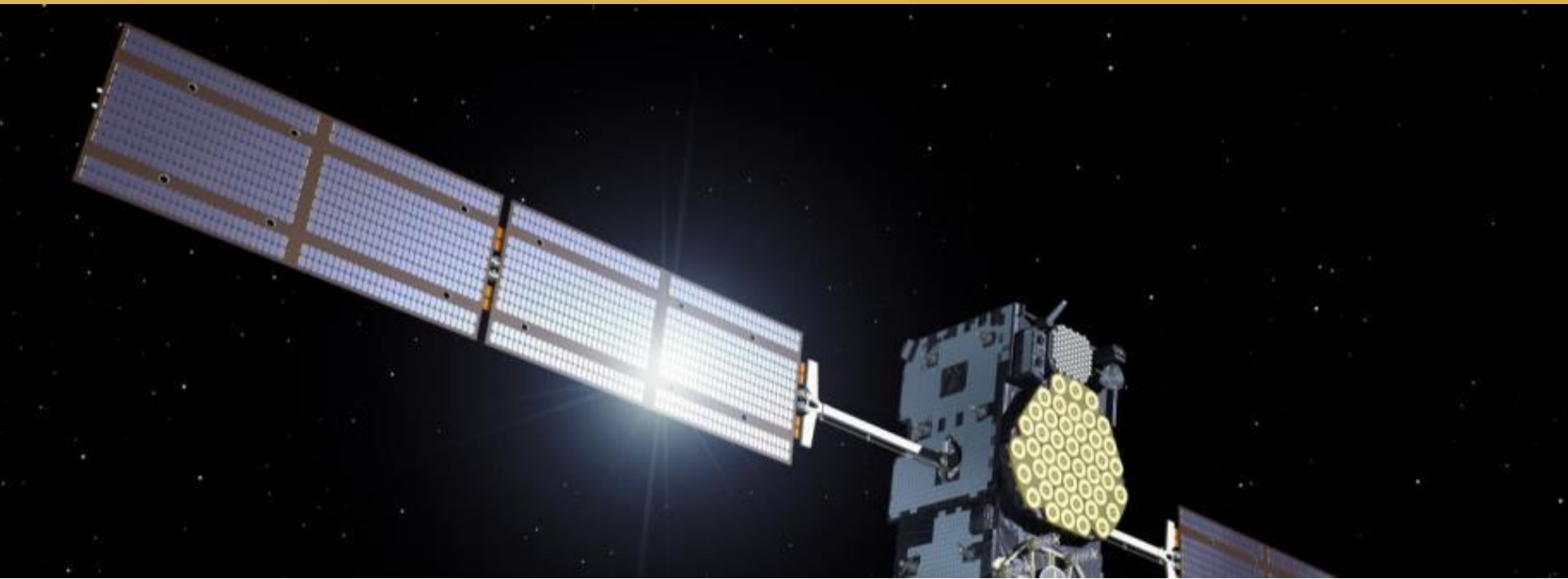
Deadline: 12 march 2019

EARTH OBSERVATION

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
DT-SPACE-01-EO-2018-2020: Copernicus market uptake	IA	9.0	9.0	9.0
LC-SPACE-02-EO-2018: Copernicus evolution – Mission exploitation concepts	CSA	8.0		
LC-SPACE-03-EO-2018: Copernicus evolution – preparing for the next generation of Copernicus Marine Service ocean models	RIA	5.0		
LC-SPACE-04-EO-2019-2020: Copernicus evolution – Research activities in support of cross- cutting applications between Copernicus services	RIA		8.0	8.0

EARTH OBSERVATION

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
NEW topic: LC-SPACE-05-EO-2019: Copernicus evolution - a gap analysis to prepare future activities for Copernicus data.....	CSA		2	
Old topic LC-SPACE-05-EO-2019 on CO2 monitoring will be moved to "other actions" (identified beneficiary action)	RIA		9.0	
LC-SPACE-06-EO-2019: International Cooperation Copernicus – Designing EO downstream applications with international partners	RIA		5.0	
LC-SPACE-24-EO-2020: Copernicus evolution – Mission exploitation concepts	RIA			8.0
LC-SPACE-25-EO-2020: Copernicus big data algorithm factory	RIA			10.0



SATELITE NAVIGATION — GALILEO AND EGNOS

Space call 2019: 20 M€;
2018-2020: 123 M€

Deadline: **5 March** 2019

CALL — EGNSS MARKET UPTAKE 2019-2020

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
SPACE-EGNSS-1-2019-2020: EGNSS applications fostering green, safe and smart mobility	IA		10.0	10.0
SPACE-EGNSS-2-2019-2020: EGNSS applications fostering digitisation	IA		4.0	5.0
SPACE-EGNSS-3-2019-2020: EGNSS applications fostering societal resilience and protecting the environment	IA		4.0	5.0
SPACE-EGNSS-4-2019: Awareness raising and capacity building	CSA		2.0	

OTHER ACTIONS FOR 2018-2020 (SUB-SET)

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
Activity 6 – Galileo Evolution, Mission and Service related R&D activities	Public Procurement		2.6	1.8
Activity 7 – EGNOS Mission and Service related R&D activities	Public Procurement		0.4	0.2
Activity 8 – GNSS evolution, infrastructure-related R&D activities	DA - ESA	36.0	31.0	10.0
Activity 12 – Horizon 2020 project monitoring and audits EGNSS	Expert Contracts		0.5	0.5

CALL — EGNSS market uptake 2019-2020
and other actions for 2018-2020



SPACE BUSINESS AND ENTREPRENEURSHIP

Indicative budget: 136 M€;
Space call: 2 M€

Deadline: 12 march 2019

NOTE:
Work programme update published 25 July 2018!

SPACE BUSINESS, ENTREPRENEURSHIP, OUTREACH AND EDUCATION

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
DT-SPACE-07-BIZ-2018: Space hubs for Copernicus market uptake	CSA	2.0		
DT-SPACE-08-BIZ-2018: Space outreach and education	CSA	2.0		
DT-SPACE-09-BIZ-2019: Space hubs – support to start-ups	CSA		2.0	
DT-SPACE-26-BIZ-2020: Space hubs – support to start-ups	CSA			2.0

SPACE BUSINESS, ENTREPRENEURSHIP, THROUGH THE EIC/ARF

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
EIC Horizon prize "Low cost space launch"	RIA			10.0
InnovFin Space Equity Pilot (ISEP)	RIA	20.0	15.0	15.0
SME Instrument	RIA	<--- 57.93 --->		
Fast-track to innovation	RIA	3.37	3.37	3.37

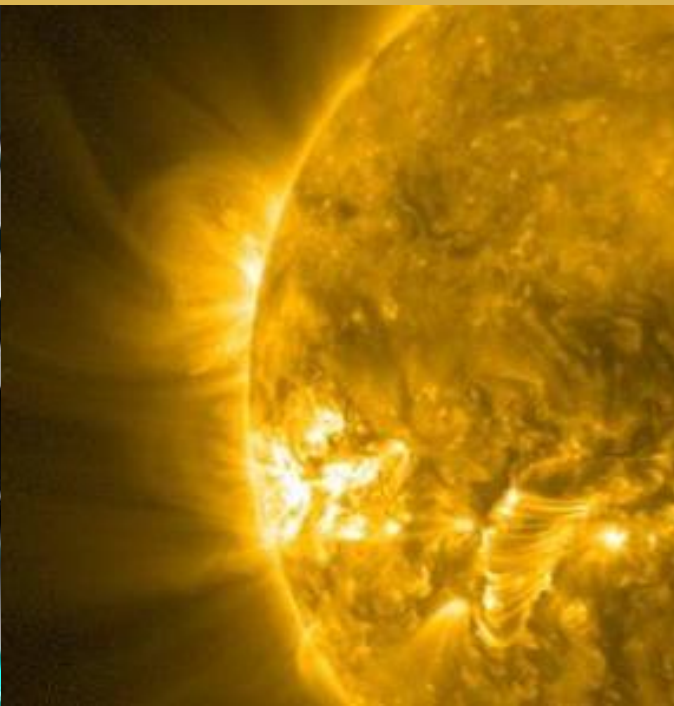
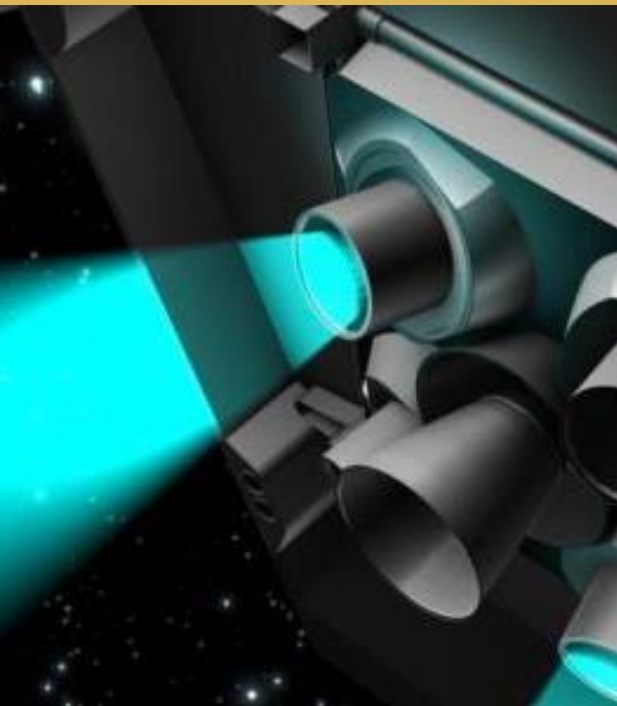


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COMPETITIVENESS OF THE EUROPEAN SPACE SECTOR TECHNOLOGY AND SCIENCE

NOTE:

Work programme update published 25 July 2018!

Space call 2018: 59 M€;
2018-2020: 269 M€

Deadline: 12 March 2019

SPACE TECHNOLOGIES, SCIENCE AND EXPLORATION

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
SPACE-10-TEC-2018-2019-2020: Technologies for European non-dependence and competitiveness	RIA	12.0	12.0	12.0
SPACE-11-TEC-2018: Generic space technologies	RIA	11.0		
SPACE-12-TEC-2018: SRC – Space Robotics Technologies	RIA	18.0		
SPACE-13-TEC-2019: SRC – In-Space electrical propulsion and station keeping	RIA		10.0	
LC-SPACE-14-TEC-2018-2019: Earth observation technologies	RIA	8.0	8.0	
SPACE-15-TEC-2018: Satellite communication technologies	RIA	9.0		
SPACE-16-TEC-2018: Access to space	RIA	10.0		
SPACE-17-TEC-2019: Access to space	RIA		9.0	

SPACE TECHNOLOGIES, SCIENCE AND EXPLORATION

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
SPACE-27-TEC-2020: SRC – Space Robotics Technologies	RIA			9.0
SPACE-28-TEC-2020: SRC – In-Space electrical propulsion and station keeping	RIA			24.0
SPACE-29-TEC-2020: Satellite communication technologies	RIA			9.0
SPACE-20-SCI-2018: Scientific instrumentation and technologies for exploration	RIA	10.0		
SPACE-30-SCI-2020: Scientific data exploitation	RIA			9.0

CALL — Space 2018-2020

2018-2020

Other actions	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
Activity 1 – ESA engineering support	Contribution agreement with an implementing entity ***	6.0	-	-
Activity 4 – In-orbit demonstration/ validation – launch services	Contribution agreement with an implementing entity ***	39.0	-	-
Activity 14 – In-orbit demonstration/ validation – Mission design, integration and implementation	Contribution agreement with an implementing entity ***	-	20.0	18.0

***** To be delegated to ESA.**





SAFE AND SECURE ENVIRONMENT

NOTE:
Work programme update published 25 July 2018!

Space call 2018: 18 M€;
2018-2020: 94.6 M€

Deadline: 12 March 2019

SECURE AND SAFE SPACE ENVIRONMENT

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
SU-SPACE-21-SEC-2020: Exploring concepts for space traffic management	CSA			2.0
SU-SPACE-22-SEC-2019: Space Weather	RIA		9.0	
SU-SPACE-23-SEC-2019: NEO	RIA		6.0	
*** SU-SPACE-31-SEC Network of governmental users for secure satellite communications	CSA		3	

OTHER ACTIONS FOR 2018-2020 (SUB-SET)

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
Activity 5 – Improving the Performance of SST at European Level	SGA - RIA		22.9	47.7

*** New activity

CALL — Space 2018-2020 and other actions for 2018-2020 (sub-set)

SU-SPACE-22-SEC-2019

Space Weather

Proposals shall address the development of modelling capabilities and/or the delivery of prototype services

The goal is to pave the way for forecasting horizons for space weather events in the order of hours or days and to identify potential indicators of extreme events

Proposals shall include architectural concepts of possible European space weather services

To be kept in mind:

- Complementarity with and/or use of precursor services available in Europe.
- The action is open to cooperation with international partners with relevant expertise

**Recommended
project size**

Indicative budget

Type of action

2 to 3 M€

9 M€

*Research and
Innovation Actions*

*Participation of industry,
including SMEs, is encouraged*

SU-SPACE-23-SEC-2019

Advanced research in Near Earth Objects (NEOs) and new payload technologies for planetary defence

Improved understanding of NEOs and development of instruments and data exploitation for asteroid impact mitigation missions.

Subtopics

- a) Maturation or adaptation to specific use cases of existing modelling capabilities
- b) Development of instruments, technologies and associated data exploitation models in support of missions to asteroids
- c) Improvement of our knowledge of the physical characteristics of the NEO population

To be kept in mind:

- Seek complementarity and synergy with EU and international efforts; by ESA and in UN framework

**Recommended
project size**

Indicative budget

Type of action

2 to 4 M€

6 M€

*Research and
Innovation Actions*

*Involvement of post-graduate
scientists, engineers and
researchers is encouraged*

WORK PROGRAMME 2018-2020

Draft 2020 topic on Space Science

H2020 work programme 2018-2020 update

2020 work programme

Space technologies, science and exploration

- **SPACE-30-SCI-2020: Scientific data exploitation**
 - Support the data exploitation of European missions and instruments, in conjunction, when relevant, with international missions and international partners;
 - Scope (e.g. type of data) still open.

WORK PROGRAMME 2018-2020

Implementation calendar

Work Programme 2019-2020

DATE	
25 July	Work programme update published Check participant portal!
16 Oct	Space call opening
5 March 2019	EGNSS call deadline
12 March 2019	Space call deadline
Mid 2019	Work Programme update -- full 2020 topics

Important dates



Space research and guidance documents

<http://ec.europa.eu/growth/sectors/space/research/horizon-2020/>

Published work programme 2018-2020

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