



HORIZON 2020

SPACE

Conor Sheehan, based on presentation from DG-GROW I1
Dublin, 18th October 2017

Space-related work programmes



- Horizon 2020 Space Work Programme 2018-2020
- European Innovation Council (EIC) Pilot
 - <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/future-and-emerging-technologies>
 - <https://ec.europa.eu/easme/en/news/sme-instrument-and-fti-2018-2020-check-draft-work-programme-1>
 - <https://ec.europa.eu/easme/en/tags/fast-track-innovation>
- ARF/ InnovFin Space Equity Pilot (ISEP)



Background



Innovation Action - Action primarily consisting of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication. Funding rate: 70% (except for non-profit legal entities, where a rate of 100% applies)

Co-ordination and Support Action - Actions consisting primarily of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructure and may also include complementary activities of strategic planning, networking and coordination between programmes in different countries. Funding rate: 100%

Research and Innovation Action - Action primarily consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. For this purpose they may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment. Projects may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment. Funding rate: 100%

Other Relevant Calls

Societal Challenges

SC5-15-2018: Strengthening the benefits for Europe of the Global Earth Observation System of Systems (GEOSS)

SC5-16-2019: Development of Commercial Activities and Services thro' use of GEOSS and Copernicus

SC1-BHC-13-2019: Mining big data for early detection of infectious disease threats

SC1-DTH-03-2018: Adaptive smart working and living environments

SC1-DTH-05-2019: Large scale implementation of digital innovation for health

LC-SC3-ES-6-2020: Energy: Advanced tool and technology development

Other Relevant Calls

Societal Challenges (continued)

MG-2-9-2019: Integrated multimodal, low emission freight transport system

LC-MG-1-2-2018: Sustainable multi-modal inter-urban transport

MG-2-6-2019: Moving freight by water

MG-2-8-2019: Innovative use of drones for safety in transport

MG-3-2-2018: The autonomous ship

DT-ART-01-2018: Testing, validation and certification procedures for highly automated driving functions

DT-ART-04-2019: Developing and testing shared, connected and co-operative automated vehicle fleets

Other Relevant Calls

Societal Challenges (continued)

DT-ART-02-2018: Support for networking activities and impact assessment for road automation

ICT

ICT-28-2018: Future hyper-connected sociality

DT-ICT-08-2019: Agricultural digital integration platform

Science

INFRAEOSC-01-2018: Access to commercial services through the EOSC Hub

INFRAEOSC-01-2018-2019: Integrating activities for advanced communities

Relevant Documents

Horizon 2020 space - guidance documents for the 2017 calls for proposals

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

H2020 Access to finance

https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/06_h2020-arf-2018-2020_06_10_2017_word_for_egreffe_rev2_for_prepublication.pdf



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- **Future & Emerging Technologies (FET-Open)**

*To develop breakthrough technologies from research base
No predefined topics, collaboration required (> 3 partners)
Grants ~€3 million*

- **SME instrument:**

*SMEs with business plans to roll out marketable innovations
13 topics, no required collaboration, must comply with SME definition
Phase 1 (€50K lumpsum); Phase 2 (<€2 million grant)*

- **Fast Track to Innovation (FTI)**

*Accelerate market uptake of innovations
Small consortia (3-5, majority private)
~ €2 million grant*

- **Prizes**

*Recognition Prizes (iCapital ~ €1.5 million, Women Innovators ~ €0.35 million)
EIC Horizon Prizes ~€40 million*



2 – ARF/ InnovFin Space Equity Pilot (ISEP)



3 – Post-ISC draft of the 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)

Globally competitive and innovative space sector

SPACE-TEC and SPACE-SCI

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

Access to space & Secure and safe space environment

SPACE-TEC

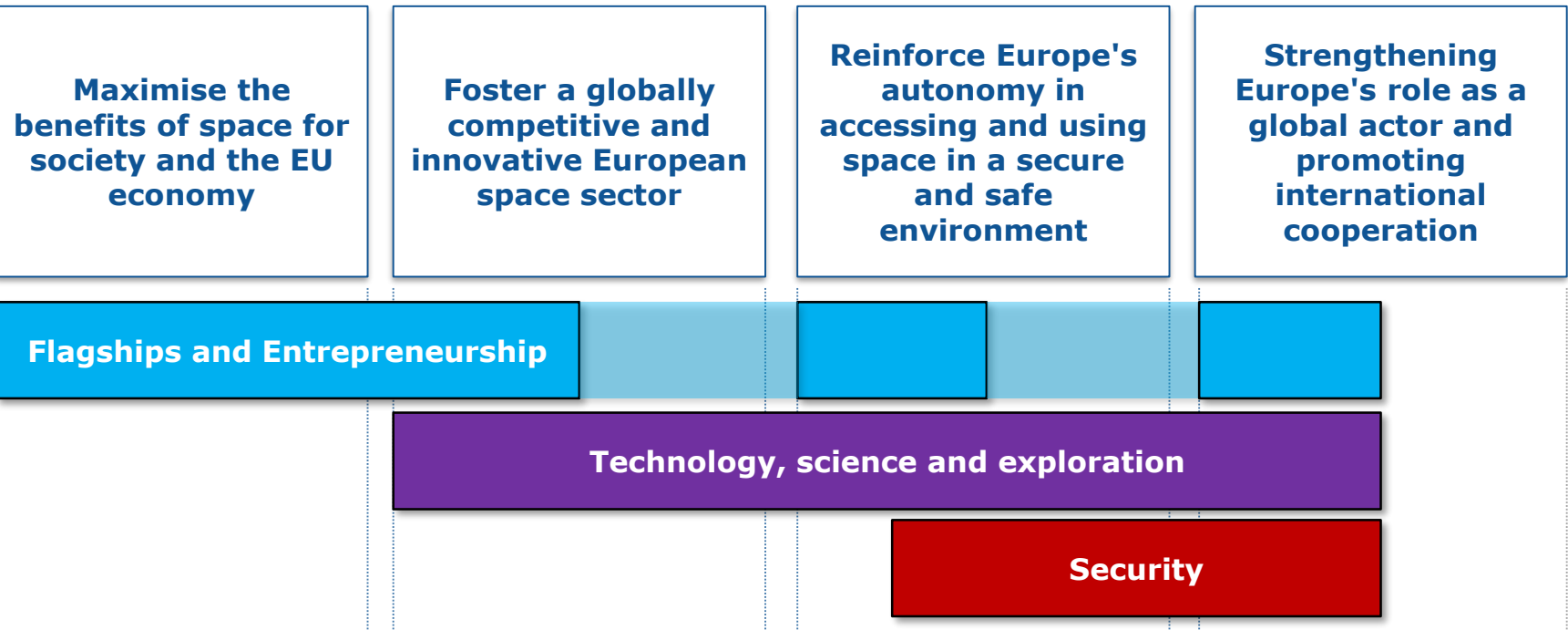
- Access to space

SPACE-SEC

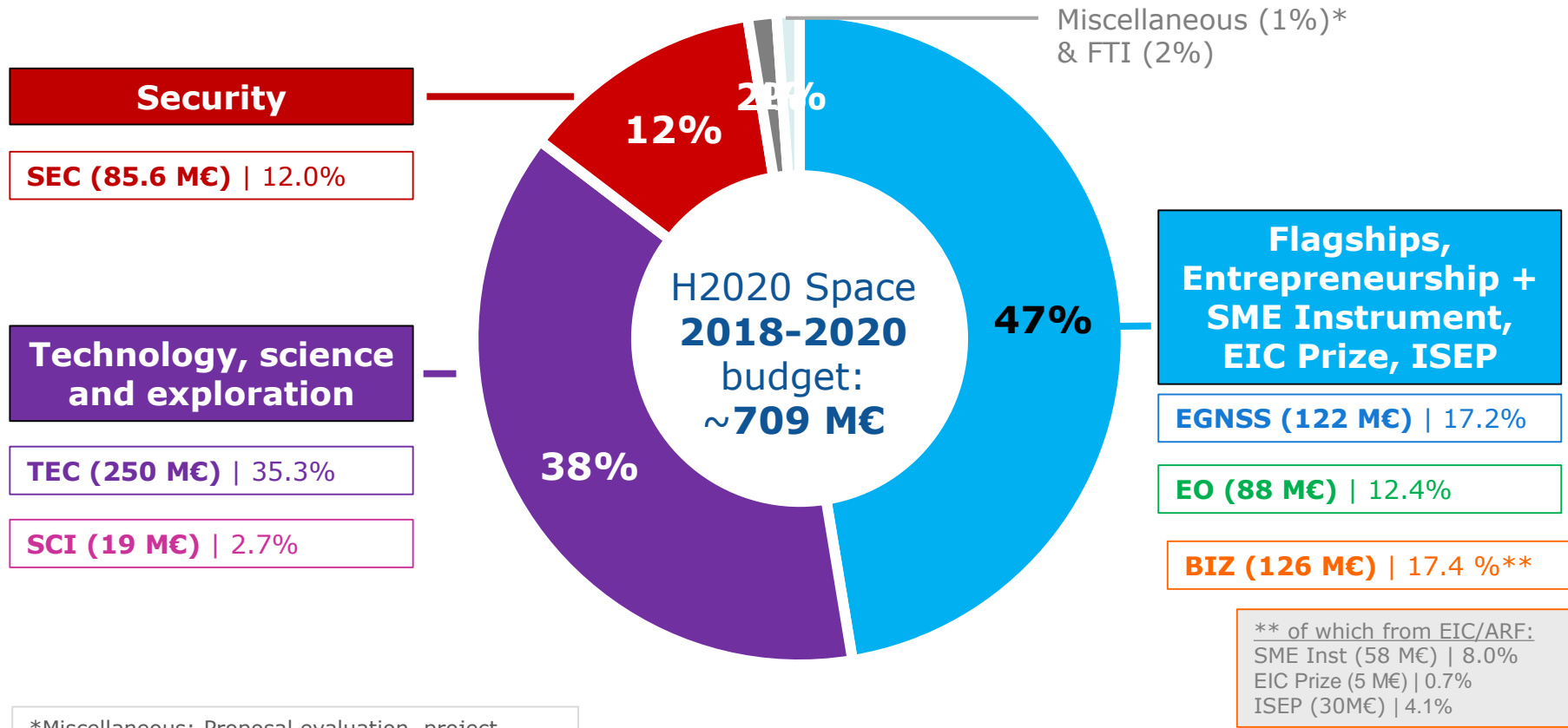
- Space weather
- Exploring concepts for space traffic management
- Space Surveillance and Tracking (SST)
- Near Earth Objects (NEOs)

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

Alignment with the Space Strategy priorities

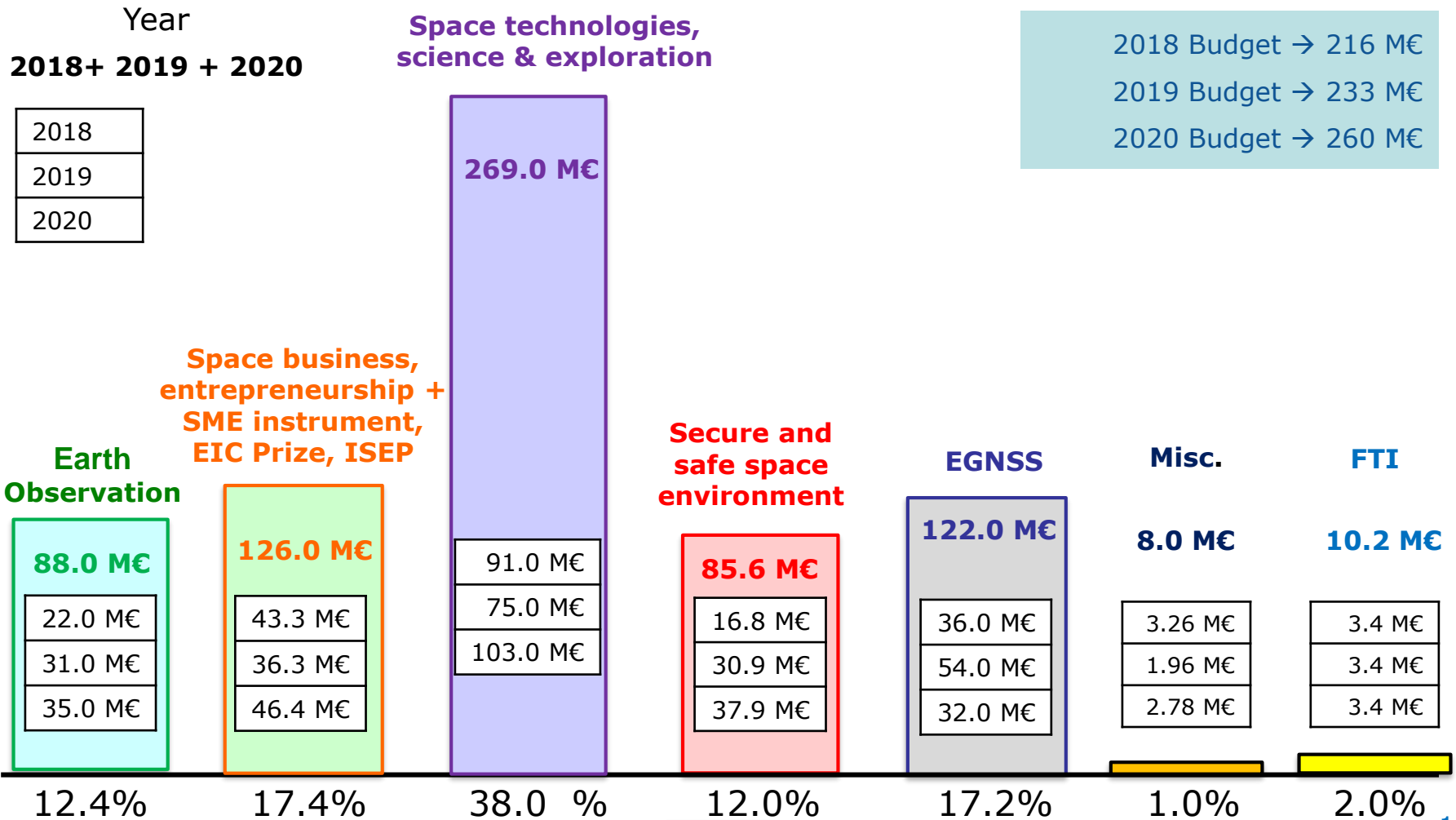


Indicative budget breakdown (2018-2020)



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

Indicative budget breakdown 2018-2020 (Post-ISC version)



Call – Space 2018-2020

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
LC-SPACE-05-EO-2019: Copernicus evolution – Research activities in support to a European operational monitoring system for fossil CO2 emissions	RIA		9.0	
DT-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

Relevant Documents

Copernicus: International Partners

<http://www.copernicus.eu/main/copernicus-international-cooperation>



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Call – Space 2018-2020 & Other actions for 2018-2020

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

Actions	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
EIC Horizon prize "Low cost space launch"	Inducement Prize			10.00
InnovFin Space Equity Pilot (ISEP)	Financial Instrument	20.0	15.0	15.0
SME Instrument	Grants	57.93		
Fast-track to innovation	Grants	3.37	3.37	3.37

Call - EGNSS market uptake 2019-2020 & Other actions for 2018-2020

Call – EGNSS market uptake 2019-2020

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
LC-SPACE-EGNSS-1-2019-2020: EGNSS applications fostering green, safe and smart mobility	IA		10.0	10.0
DT-SPACE-EGNSS-2-2019-2020: EGNSS applications fostering digitisation	IA		4.0	5.0
SU-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)

Other actions	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
Activity 7 – Galileo Evolution, Mission and Service related R&D activities	Public Procurement		2.6	1.8
Activity 8 – EGNOS Mission and Service related R&D activities	Public Procurement		0.4	0.2
Activity 9 – GNSS evolution, infrastructure-related R&D activities	DA - ESA	36.0	31.0	10.0
Activity 13 – Horizon 2020 project monitoring and audits EGNSS	Expert Contracts		0.5	0.5

Call – Space 2018-2020

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	
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-18-TEC-2019-2020: In-orbit validation/demonstration – Mission integration and implementation	RIA		20.0	18.0
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

Other actions for 2018-2020

Other actions for 2018-2020 (sub-set)

Other actions	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
Activity 1 – ESA engineering support	Grant to Identified Beneficiary	4.0		2.0
Activity 3 – Programmatic Support Actions for the Strategic Research Clusters	2 Grants to Identified Beneficiary		6.0	
Activity 4 – IOD/IOV – launch services	Public Procurement	9.0	10.0	20.0

Back-up slide for IOD

2018-2020

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
SPACE-18-TEC-2019: In-orbit validation/ demonstration – Mission design, integration and implementation	IA	--	20.0	18.0

2018-2020

Other actions	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
Activity 1 – ESA engineering support	Grant to identified beneficiary	4.0	-	2.0
Activity 4 – In-orbit demonstration/ validation – launch services	Procurement	9.0	10.0	20.0

Call – Space 2018-2020 and Other actions for 2018-2020 (sub-set)

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			4.0

Other actions for 2018-2020 (sub-set)

Other actions	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
Activity 5 – Space surveillance and tracking SST	Grant to Identified beneficiary	1.8	1.9	1.9
Activity 6 – Improving the Performance of SST at European Level	SGA - RIA	15.0	20.0	30.0