



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA IZOBRAŽEVANJE,
ZNANOST IN ŠPORT



Slovenija in Obzorje 2020 - Vesolje

Dr. Ivan Skubic

ARSO, 9. december 2013

Predstavitev vesoljskih tehnologij in programov



I. ODLIČNA ZNANOST

1. Evropski raziskovalni svet (ERC)
2. Prihodnje in nastajajoče tehnologije (FET)
3. Ukrepi Marie Curie za razvoj spretnosti, usposabljanje in poklicni razvoj
4. Evropske raziskovalne infrastrukture

II. VODILNI POLOŽAJ V INDUSTRiji

1. Vodilni položaj na področju ključnih podpornih in industrijskih tehnologij (LEIT)
 - (i) IKT (vključno z mikro in nano elektroniko in fotoniko)
 - (ii) Nanotehnologije, napredni materiali, biotehnologija, sodobna proizvodnja & predelava
 - (iii) Vesolje**
2. Dostop do tveganega kapitala
3. Inovacije v MSP

III. DRUŽBENI IZZIVI

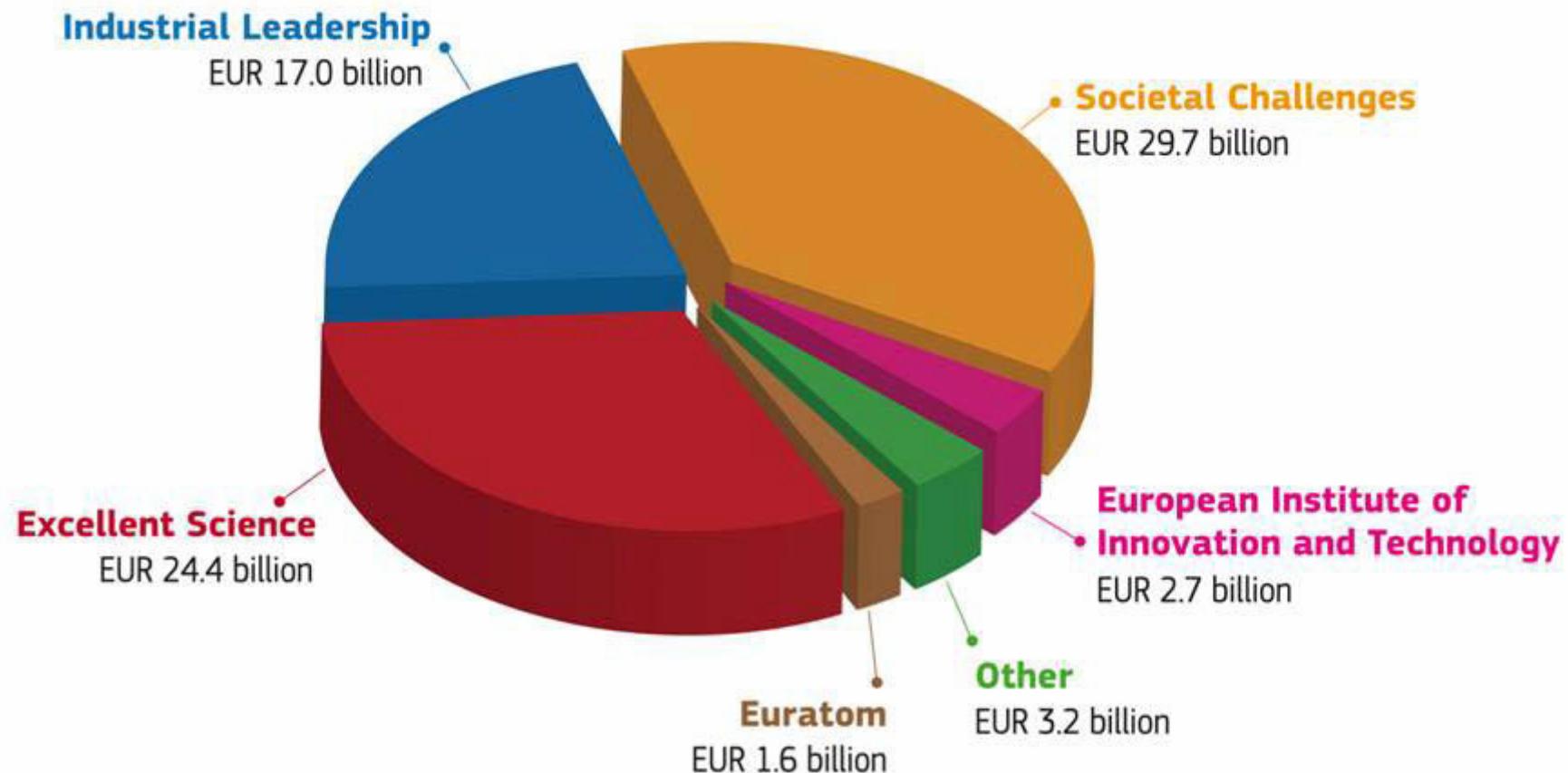
1. Zdravje, demografske spremembe in dobro počutje
2. Zanesljiva preskrba s hrano, trajnostno kmetijstvo, morsko in pomorsko raziskovanje ter biogospodarstvo
3. Zanesljiva, čista in učinkovita energija
4. Pametni, zeleni in integrirani prevoz
5. Podnebni ukrepi, učinkovita raba virov in surovine
6. Evropa v spremenjajočem se svetu - vključujoče, inovativne in odsevne družbe
7. Varne družbe - varovanje svobode in varnosti Evrope in njenih državljanov

OSTALO

1. Razširjanje odličnosti in širjenje udeležbe
2. Znanosti z in za družbo
3. EURATOM
4. Skupno raziskovalno središče (JRC)
5. Evropski inštitut za inovacije in tehnologijo (EIT)



HORIZON 2020 BUDGET (EUR 78.6 billion, current prices)





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Evropski vesoljski programi 2014 - 2020

~ 12 Mrd €



**Novo: Zaščita evropskih vesoljskih infrastruktur
„Space Surveillance and Tracking system (SST)“**



Obzorje 2020 - Vesolje

1. Osnovni podatki o Obzoru 2020 – Vesolje in delovnem programu 2014 & 2015:

<http://www.mizs.gov.si/si/obzorje2020>

Objava razpisa za leto 2014: **11. december 2013**

Roki za prijavo: **26. marec 2014, 3. april 2014**

2. Oblike financiranja:

RIA: Research and Innovation Action (100%), TRLs 3-6

• 25% enotna stopnja za indirektne stroške = 125%

IA: Innovation Action (75%)

• 25% enotna stopnja za indirektne stroške (od 75%) = 93,75%, **TRLs 5-8**

• Izjema: Neprofitne organizacije: $100\% + 25\% = 125\%$

CSA: Coordination and Support Action (100%)

• 25% enotna stopnja za indirektne stroške = 125% (izjeme! – npr. podpodb.)

SME: SME Instrument [samo za „SME“] (RIA or IA, odvisno od vsebine)

PP: Public procurement

3. Uvedba novih oblik delovanja:

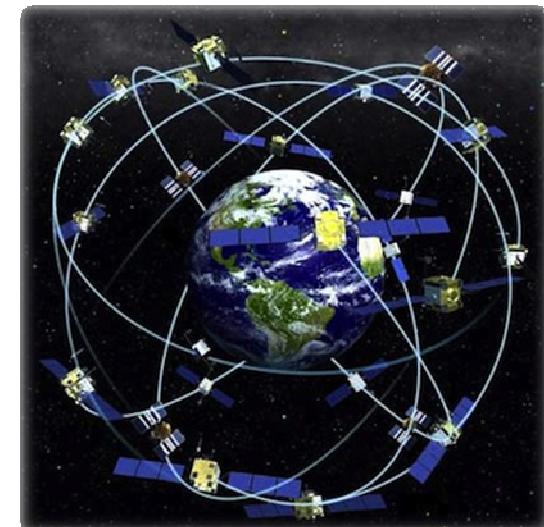
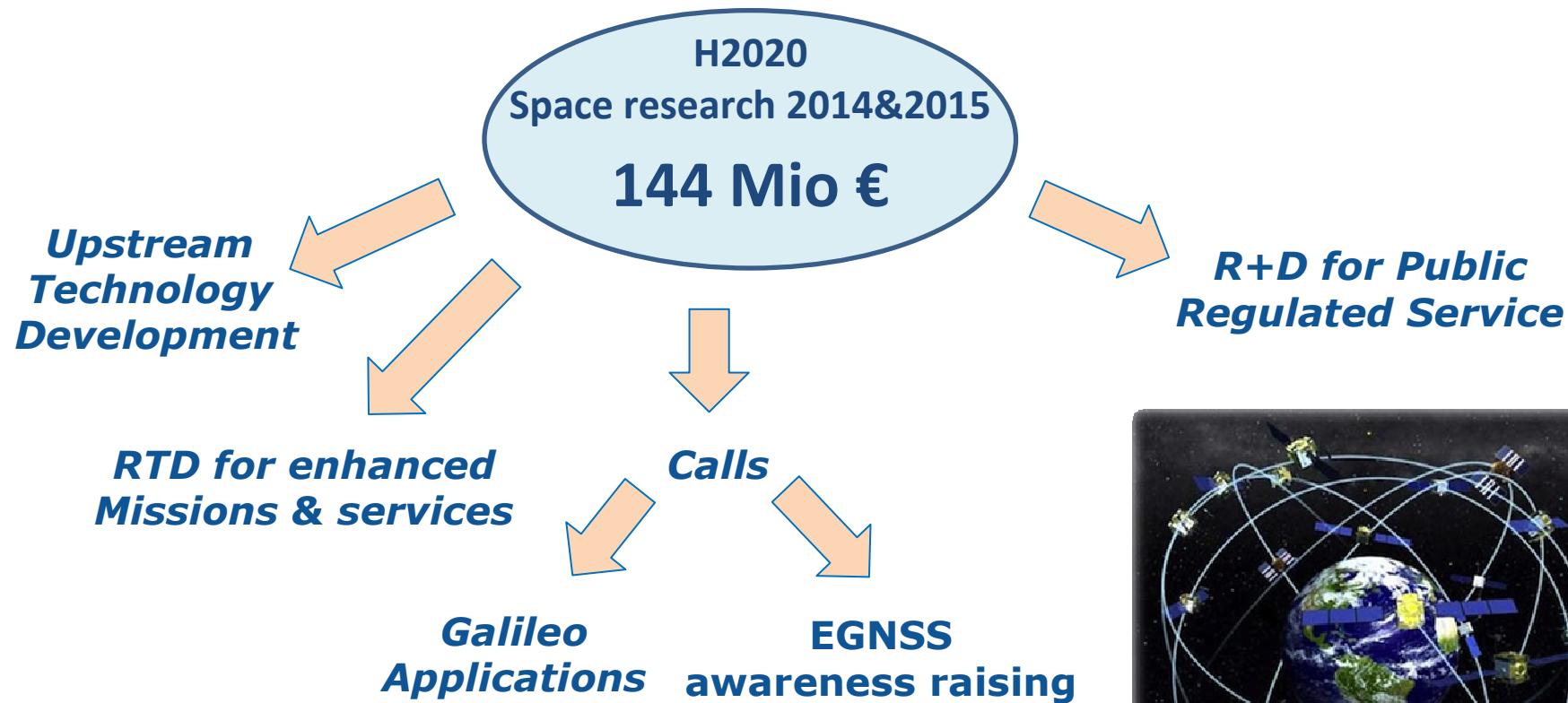
PSA: Programme Support Activity (strateška zasnova za delovanje SRC)

SRC: Strategic Research Clusters (izhaja iz PSA, večji in dolgoročnejši projekti)

ESA: upravičena do sodelovanja, kjer je to posebej navedeno



European Global Navigation Satellite System (EGNSS)



Call „Applications in Satelite Navigation – Galileo“ – 2014 & 2015

Oznaka razpisa	Shema financiranja	Tema	Leto	Okvirna Sredstva (mio EUR)	Rok prijave
GALILEO 1	IA	EGNSS applications	2014 2015	15-20 10-15	3.4.2014 4.2.2015
GALILEO 2	IA	Small and Medium Enterprise (SME) based EGNSS applications (*)	2014 2015	5-10 5-10	3.4.2014 4.2.2015
GALILEO 3	IA	Releasing the potential of EGNSS applications through international cooperation	2014 2015	5-8 0-5	3.4.2014 4.2.2015
GALILEO 4	CSA	EGNSS awareness raising, capacity building and/or promotion activities, inside or outside of the European Union	2014	5-10	3.4.2014

(*) for GALILEO 2 the consortium coordinator shall be SME



The European Earth Observation Programme (EO)



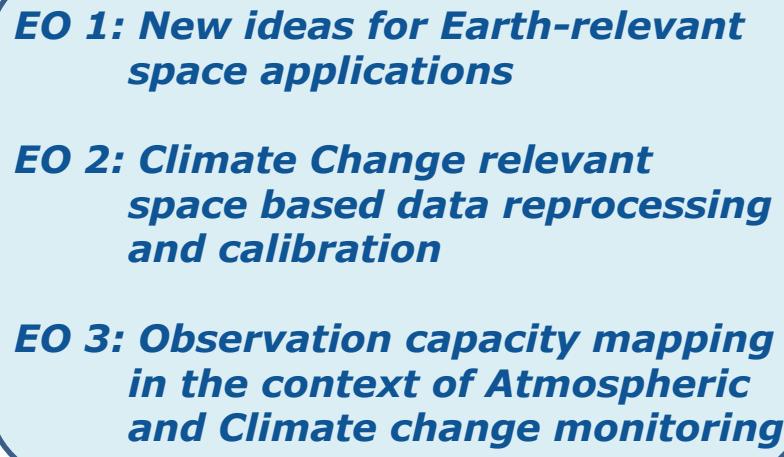
H2020
Space research 2014&2015
58,5 Mio €

Other actions
2014

*Transition
towards
Copernicus
(MACC II,
MyOcean 2)*

Call 2014

Call 2015





New ideas for Earth-relevant

Scientific exploitation of existing and forthcoming European space-based data will be enhanced, by stimulating the emergence of novel ideas on how to use them. Research to promote such new ideas will ensure Europe's leadership in the field of space applications in the future. Copernicus data are expected to increase the spatial coverage and revisit times, and increase the value of Earth observation data for Earth science and future emerging applications.

- ✓ **Development of new/emerging uses for Earth-relevant space-based data**
- ✓ **Could include a wide variety of Earth-relevant space-based data (e.g. remote-sensing data, gravity data, magnetic data, GNSS signals)**

10 Mio €
2.5 Mio € project

Some of the identified Slovenian capacities in EO 1:

- The tools for access to space data have already been developed and demonstrated
- Developed fully automatic remote sensing image processing chain (one of the main strengths)
- Best practices for several applications developed to contribute to the standardisation of the process
- Services and applications are developed in agriculture, forestry, disaster monitoring, invasive species detection and mapping, urban areas observation,...
- Near real time capabilities



EO 2 (2014)

Climate Change relevant space-based Data reprocessing and calibration

The data from past remote sensing missions available either from European and non-European missions, must be made accessible in a way to establish seamless time series of similar observations, contributing to the generation of Climate Data Records across sensors and technologies over two decades and more.



EO 3 (2014)

Observation capacity mapping in the context of Atmospheric and Climate change monitoring

Research is needed to assess gaps in remote observation availability and suitable approaches for defining virtual observation constellations. It should include mapping of ground based networks, airborne, balloons and sub-orbital platforms as well as space based sensors. Appropriate calibration and validation of data to be assessed... Mobilisation of key players across Europe and globally, best practices and consensus on the strategies proposed.



EO 1 (2015)

Bringing EO applications to the market

It is essential that EO products and information generation are transferred to the environment and products are put into the market. The outcome is a product which is validated and accepted as a marketable product (of processes).

10 Mio €

1-2 Mio € project

EO 2 (2015)

Stimulating wider research use of EO

Sentinel data streams are expected to amount to several petabytes per day, delivering unprecedented temporal and spatial resolution. To utilise the huge amounts of data, new handling and processing paradigms. To utilise the huge amounts of data, new handling and predictable access methods need to be developed.

11 Mio €

2-3 Mio € project

Slovenia had developed applications that can be prepared to the market.

The processing is fully automatic, connected with the end users (validation has to be included to develop the full marketing potential).

Lot of expertise in easy-to-use, calibrated and

For Slovenia, products coming from Sentinel 1,2 and 3 are directly applicable and useful. Several projects have already been started to use this data, including integration and products from combination of it, automatic processing and handling huge amount of data. Relevant development tools and access methods are already partially addressed.



EO 3 (2015)

Technology developments for competition

Research should be undertaken to review the emerging needs for disaster observation. The required technology challenges as regards inter-satellite communication within the constellation or with ground stations are to be identified and examined.

**5 Mio €
2,5 Mio € project**



Slovenia is currently preparing a proposal for a small optical satellite constellation for disaster observation.

Several years of expertise in small satellites, remote sensing, data processing, data dissemination and technologies (e.g. formation flying, precision thrusting and pointing, communication within the constellation or with ground stations.



Call „Earth Observation“ – 2014

Oznaka razpisa	Shema financiranja	Tema	Leto	Okvirna Sredstva (mio EUR)	Rok prijave
EO 1	RIA	New ideas for Earth-relevant space applications	2014	10	26.3.2014
EO 2	RIA	Climate Change relevant space-based data reprocessing and calibration	2014	5,5	26.3.2014
EO 3	RIA	Observation capacity mapping in the context of Atmospheric and Climate change monitoring	2014	6	26.3.2014

Call „Earth Observation“ – 2015

Oznaka razpisa	Shema financiranja	Tema	Leto	Okvirna Sredstva (mio EUR)	Rok prijave
EO 1	IA	Bringing EO applications to the market	2015	10	?
EO 2	RIA	Stimulating wider research use of Copernicus Sentinel Data	2015	11	?
EO 3	RIA	Technology developments for competitive imaging from space	2015	5	?



Protection of European assets in and from space

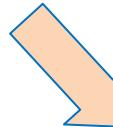


H2020
Space research 2014&2015
29,5 Mio €

Call 2014



Other actions



Call 2015

PROTEC 1: Space Weather
PROTEC 2: Access technologies and characterisation for Near Earth Objects (NEOs)

PROTEC 1: Passive means to reduce the impact of Space Debris

Call „Protection of European assets in and from space“ – 2014

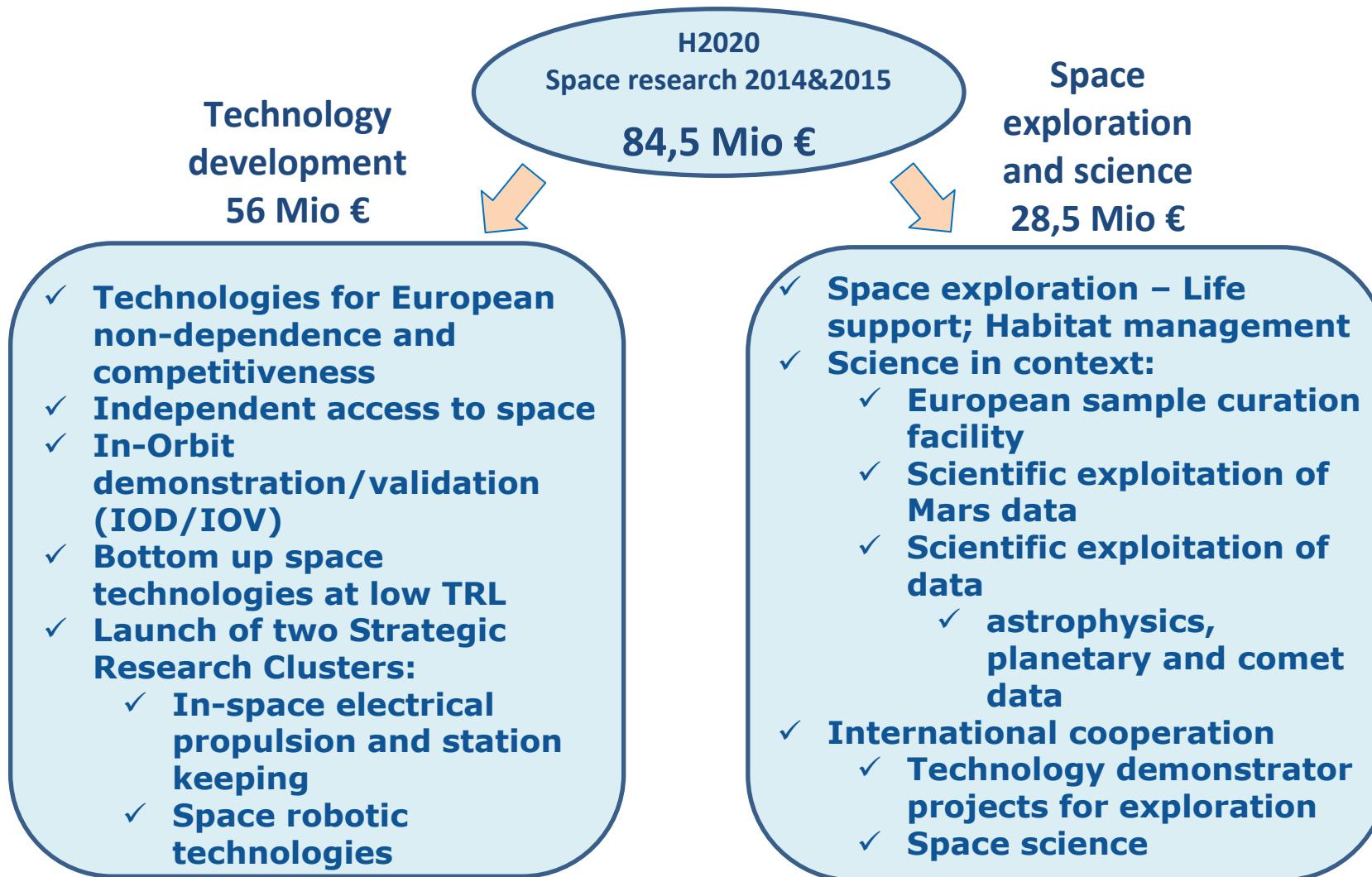
Oznaka razpisa	Shema financiranja	Tema	Leto	Okvirna Sredstva (mio EUR)	Rok prijave
PROTEC 1	RIA	Space Weather	2014	8 (PROTEC 1 + PROTEC 2)	26.3.2014
PROTEC 2	RIA	Access technologies and characterisation for Near Earth Objects (NEOs)	2014	8 (PROTEC 1 + PROTEC 2)	26.3.2014

Call „Protection of European assets in and from space“ – 2015

Oznaka razpisa	Shema financiranja	Tema	Leto	Okvirna Sredstva (mio EUR)	Rok prijave
PROTEC 1	RIA	Passive means to reduce the impact of Space Debris	2015	6,5	?



Competitiveness of the European Space Sector





Outreach and communication

COMPET 10 – 2014: Outreach through education

One of the main obstacles for the development and sustainability of the European space industrial fabric (and the delivery of cutting-edge scientific achievements) is the lack of scientists, engineers and technicians with specific interest on the area of space research and development.

COMPET 11 – 2014: Transnational and international cooperation

Support will be given to a network of formally nominated NCPs in the area of

Network of NCPs is important for support and successful applications of projects in Slovenia

to be selected



Slovenia has performed many activities in the field in the past, including primary and secondary schools. This shall be continued and intensified.

4 Mio €

Call „Competitiveness of the European Space Sector: technology and Science“ – 2014

Oznaka razpisa	Shema financiranja	Tema	Leto	Okvirna Sredstva (mio EUR)	Rok prijave
COMPET 1	RIA	Technologies for European non-dependence and competitiveness	2014	10	26.3.2014
COMPET 2	RIA	Independent access to space	2014	8	26.3.2014
COMPET 3 (**)	CSA(*)	In-Space electrical propulsion and station keeping	2014	4	26.3.2014
COMPET 4 (**)	CSA(*)	Space Robotics Technologies	2014	4	26.3.2014
COMPET 5	CSA	In-Orbit demonstration/Validation (IOD/IOV)	2014	2	26.3.2014
COMPET 6	RIA	Bottom-up space technologies at low TRL	2014	5	26.3.2014
COMPET 7 (**)	RIA	Space exploration – Life support	2014	8	26.3.2014

(*) one action (PSA) to be selected for the future implementation of SRC

(**) ESA is eligible to participate in consortia of proposals submitted under this call

Call „Competitiveness of the European Space Sector: technology and Science“ – 2014 (cont.)

Oznaka razpisa	Shema financiranja	Tema	Leto	Okvirna Sredstva (mio EUR)	Rok prijave
COMPET 8	RIA	Science in context: sample curation facility and scientific exploration of data from Mars missions	2014	4	26.3.2014
COMPET 9	CSA	Technology „demonstrator projects“ for exploration	2014	3	26.3.2014
COMPET 10	CSA	Outreach through education	2014	4 (COMPET 10 + COMPET 11)	26.3.2014
COMPET 11	CSA(*)	Transnational and international cooperation among NCPs	2014	4 (COMPET 10 + COMPET 11)	26.3.2014

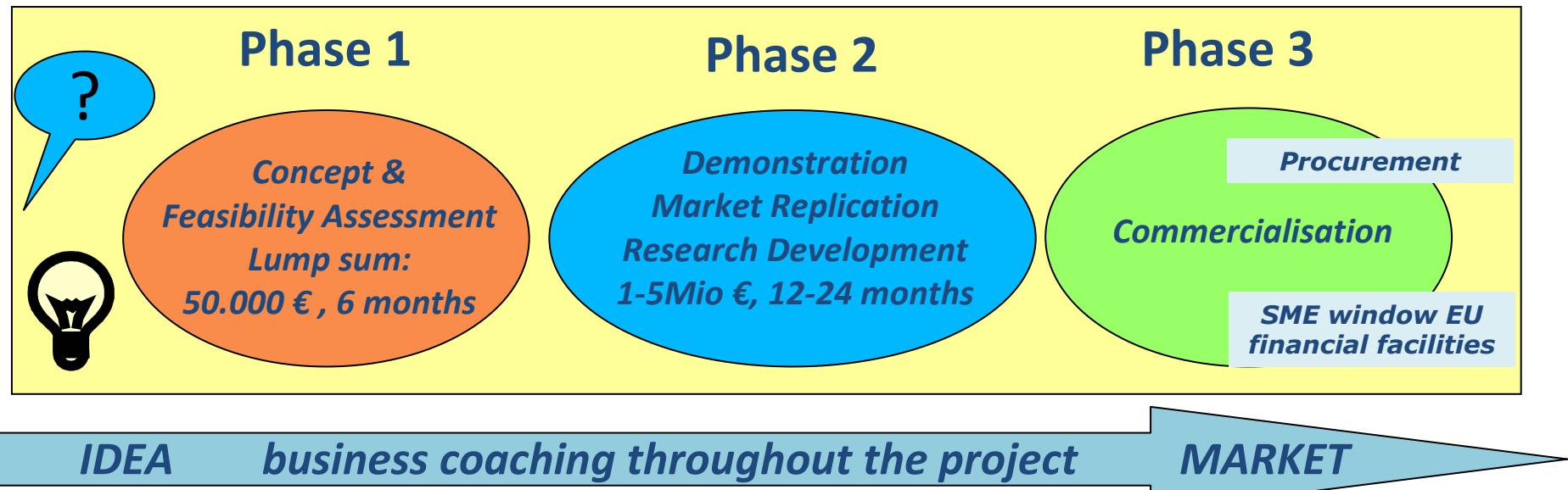
Call „Competitiveness of the European Space Sector: technology and Science“ – 2015

Oznaka razpisa	Shema financiranja	Tema	Leto	Okvirna Sredstva (mio EUR)	Rok prijave
COMPET 1	RIA	Technologies for European non-dependence and competitiveness	2015	10	?
COMPET 2	RIA	Independent access to space	2015	6	?
COMPET 3	RIA	Bottom-up space technologies at low TRL	2015	7	?
COMPET 4 (*)	RIA	Space exploration – Habitat management	2015	6	?
COMPET 5	RIA	Scientific exploration of astrophysics, comets, and planetary data	2015	6	?
COMPET 6	RIA	International Cooperation in space science	2015	1,5	?

(*) ESA is eligible to participate in consortia of proposals submitted under this call



SME INSTRUMENT



- Targeted at all types of innovative SMEs showing a strong ambition to develop, grow and internationalise
- Only SMEs allowed to apply for funding and support
- Single company support possible
- No obligation for applicants to sequentially cover all three phases; each phase open to all SMEs
- Combination of demonstration activities (testing, prototyping, ...), market replication encouraging the involvement of end users or potential clients, and research

**17 Mio €
2014&2015**

Call „SME Instrument“ – 2014 & 2015

Oznaka razpisa	Shema financiranja	Tema	Leto	Okvirna Sredstva (mio EUR)	Rok prijave (*)
SME instrument	SME (RIA, IA)	Any aspect of the Specific programme for Space	2014	8.5	Phase 1: - 18.6.2014 - 24.9.2014 - 17.12.2014 Phase 2: - 9.10.2014 - 17.12.2014
SME instrument	SME (RIA, IA)	Any aspect of the Specific programme for Space	2015	8.75	(**) Phase 1: - 18.3.2015 - 17.06.2015 - 17.9.2015 - 16.12.2015 Phase 2: - 18.3.2015 - 17.6.2015 - 17.9.2015 - 16.12.2015

(*) Publication date: 11th Dec. 2013, opening date 1.3.2014 (Phase 1 & Phase 2)

(**) Dates are indicative

Other actions – 2014 & 2015

Vsebina	Shema financiranja	Okvirna Sredstva (mio EUR)
Activity 1 (2014): Developments for a Galileo Public Regulated Service (PRS)	PP	20
Activity 2 (2014): SST: participation of the EU Satelite Centre at the SST Service Function	CSA, GIB	1
Activity 3 (2014): Studies & Communication	PP	1,5
Activity 4 (2014): Horizon 2020 proposal evaluation, monitoring and audits (EGNS)	EC/PP	2
Activity 5 (2014): Transition towards Copernicus	CSA, GIB	11
Activity 6 (2014): Horizon 2020 proposal and proposal evaluation	EC	2
Activity 1 (2015): GNSS Evolution, Mission and Services related R&D activities	PP	6
Activity 2 (2015): GNSS evalution, infrastructure-related R&D activities	Managed by ESA	55
Activity 3 (2015): Space Surveillance and tracking (SST)	RIA, GIB	2
Activity 4 (2015): Improving the Performance of SST at the European Level	CSA, GIB	12
Activity 5 (2015): Studies & Communication		1
Activity 6 (2015): Horizon 2020 proposal evaluation, monitoring and audits (EGNS)	EC/PP	2
Activity 7 (2015): Horizon 2020 proposal and proposal evaluation	EC	1

PP – Public procurement

GIB – Grant to predefined beneficiary

EC – Expert contracts



Uporabne povezave

Participant Portal:

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

- Razpisna dokumentacija
- Dokumenti Obzorja 2020
- Podpora
- Evalvatorji:

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

Dodatne informacije o H2020

www.ec.europa.eu/research/horizon2020

Objavljeni osnutki delovnih programov in drugi dokumenti

http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020-documents

Obzorje 2020 na spletni strani MIZŠ, kjer so obvestila in domači dogodki

<http://www.mizs.gov.si/si/obzorje2020>



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Hvala za pozornost!

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