



HORIZON 2020

SPACE

DG GROW – Internal Market, Industry Entrepreneurship and SMEs
GROW/I1 - Space Policy and Research Unit
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Toulouse, 13 September 2017



European Union Space Programmes

Multiannual Financial Framework 2014-2020



~ 1 479 M€



~ 4 291 M€



~ 7 071 M€

~ 12 841 M€



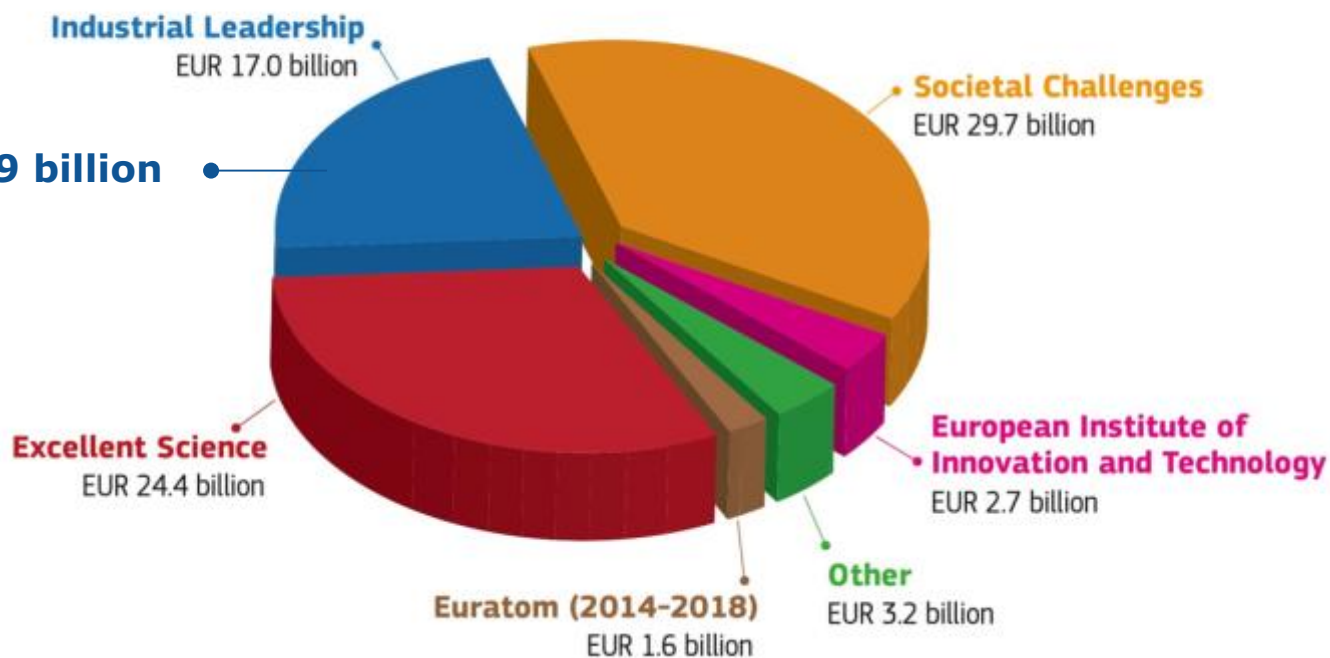
Space research in Horizon 2020



Space in H2020

HORIZON 2020 BUDGET (in current prices): € 79 billion

LEIT-Space: € 1.479 billion



Links to other H2020 parts

Excellent science

Priority 1 – **Excellent science**

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

Industrial leadership

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**

Societal challenges

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**



- Enabling European **competitiveness, non-dependence** and **innovation** of the European space sector
 - ✓ Safeguard and further develop a competitive, sustainable and entrepreneurial space industry and research community and strengthen European non-dependence in space systems
 - ✓ Boost innovation between space and non-space sectors
- Enabling advances in **space technologies**
- Enabling the **exploitation of space data**
- Enabling European research in support of **international space partnerships**
- The application of space technologies shall be supported through the respective specific objectives of the priority "**Societal challenges**", where appropriate

For more information please consult Council Decision of 3 December 2013, [OJ L 347/993](#).



EU Agencies involved

- **Research Executive Agency (REA)**
- **European GNSS Agency (GSA)**
- **Executive Agency for SMEs (EASME)**

TASKS include:

Handling of calls and submission of proposals, evaluation process, grant agreement preparation, grant agreements signature, handling submission of reports , reviews, payments, audits...



Horizon 2020 Space Work Programme 2018 - 2020

Information and topic descriptions indicated in this draft presentation may not appear in the final work programme; and likewise, new elements may be introduced at a later stage. Any information disclosed by any other party shall not be construed as having been endorsed by or affiliated to the Commission.

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The content is indicative pending adoption by end October 2017

Horizon 2020 Space 2018-2020 'calls'



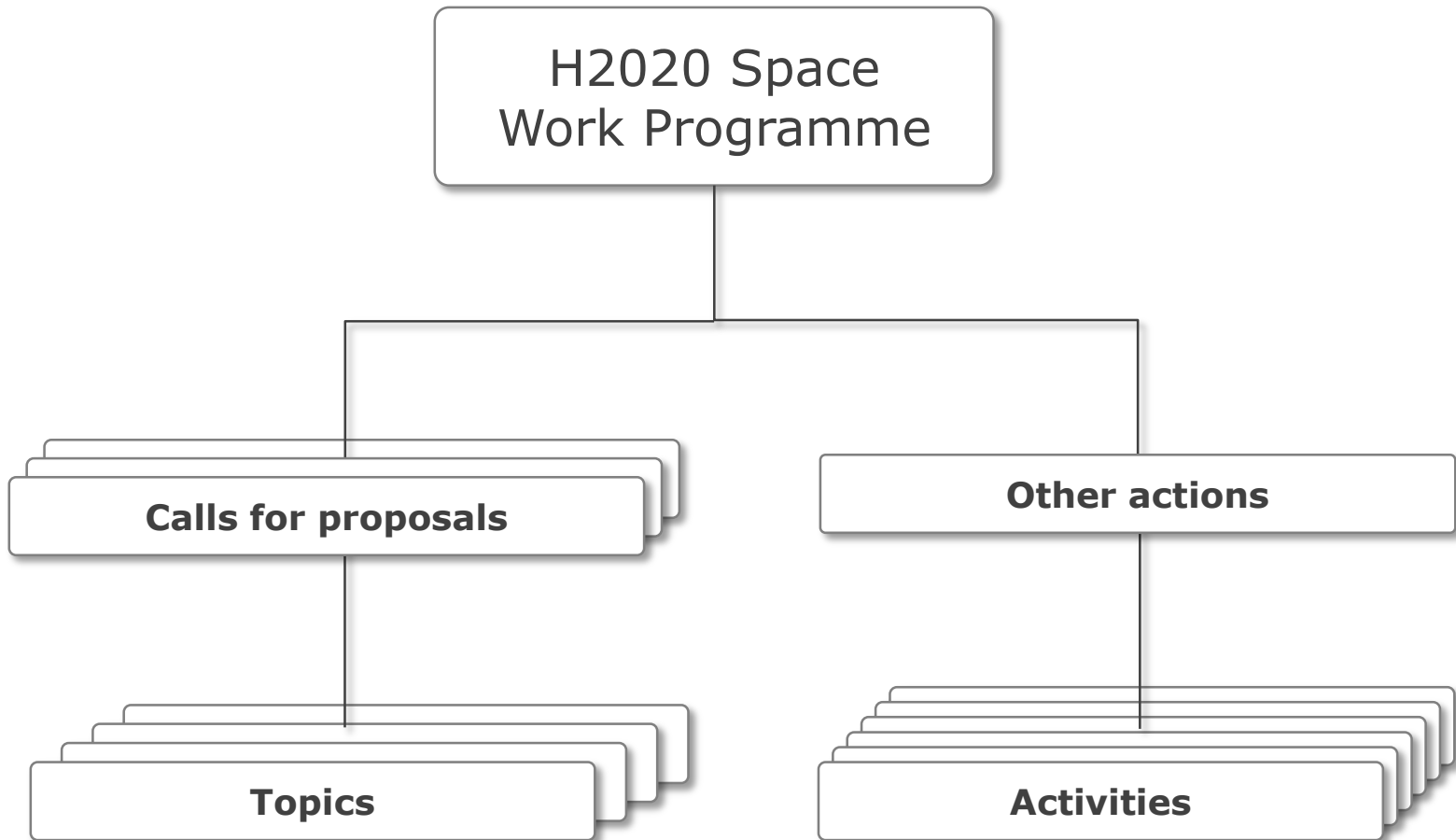
Horizon 2020 Participants Portal:

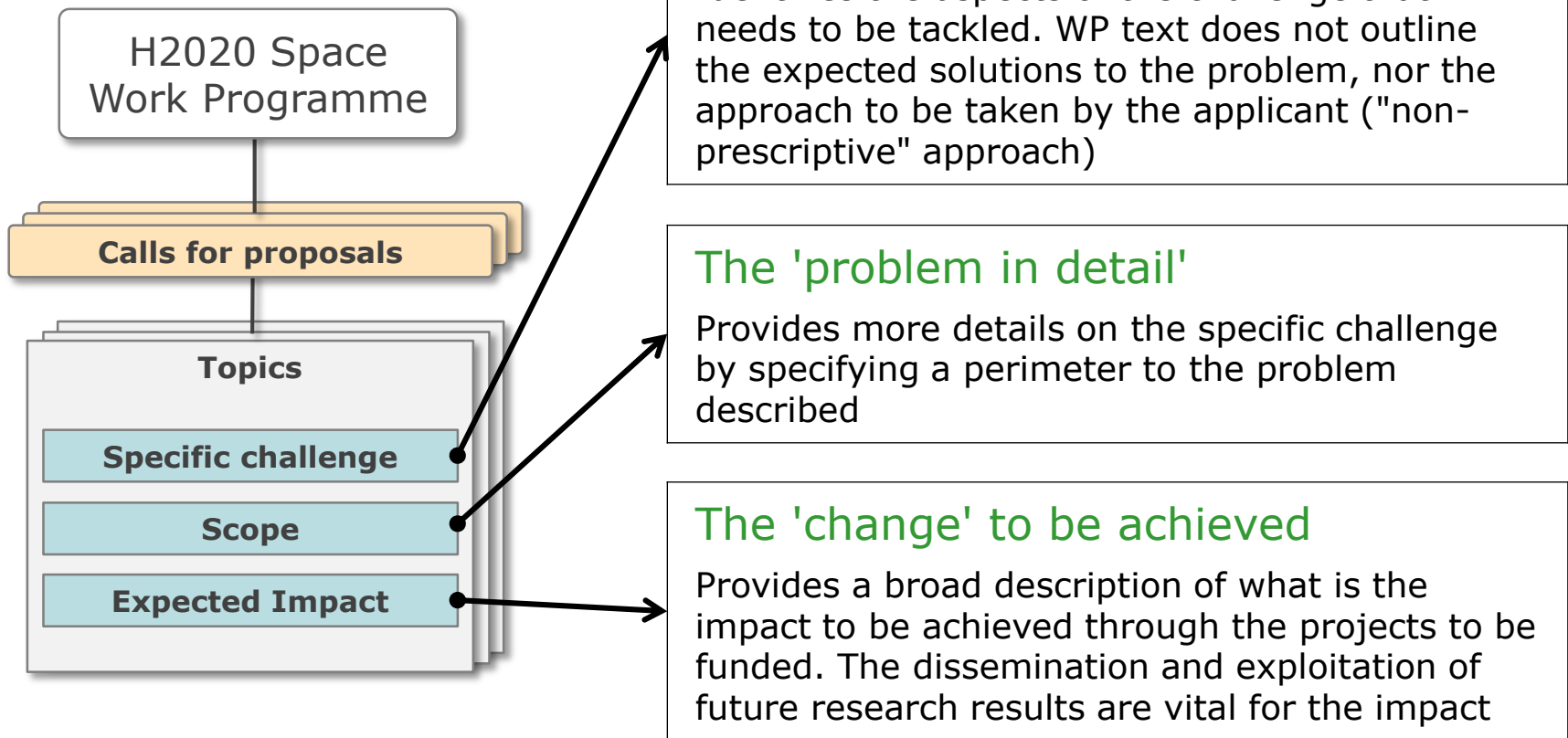
<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/>

The screenshot shows the 'Calls for Proposals' page on the Horizon 2020 Participant Portal. The 'Space' category is selected in the 'Calls' sidebar. A grid of call cards is displayed, with a red dashed box highlighting several cards related to Space, including 'Applications in Satellite Navigation-Galileo 2014-2015', 'Horizon 2020 dedicated SME Instrument Phase 1 and 2, 2014-2015', 'H2020-LEIT-Space-Competitiveness of the European Space Sector-2014', 'Earth Observation-2014-LEIT SPACE', 'Earth Observation-2015-LEIT SPACE', and 'Protection of European assets in and from Space-2014-LEIT SPACE'.

H2020 Space
Work Programme

Calls for
proposals







- **Research and innovation actions (Funding rate: 100%)**: Projects aiming to establish new knowledge, new or improved technology by possibly including basic and applied research, technology development, testing and validation on a small-scale prototype.
- **Innovation actions (Funding rate: 70% - exception: 100% for non-profit legal entities)**: Projects aiming to produce plans, arrangements or designs for a new or improved product, design, process or service by possibly including large-scale product validation and market replication.
- **Coordination and support actions (Funding rate: 100%)**: Projects consisting of accompanying/complementary measures (standardisation, awareness-raising, communication, policy dialogues, networking, studies, etc.)

Full detailed description can be found in the **General Annexes 20 – part D** of the Work Programme 2016-2017: http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016-2017/annexes/h2020-wp1617-annex-ga_en.pdf

WP 2018-2020 building blocks

Maximising benefits of space for society and EU economy

SPACE-EO

- EO market uptake
- Copernicus mission and services evolution
- International coop.
- Big data

SPACE-EGNSS

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

SPACE-BIZ

- Support to space hubs
- Space outreach and education
- Horizon Prize for European low-cost space launch
- Innovfin Space Equity Pilot (ISEP)
- SME Instrument
- Fast-track to Innovation

Globally competitive and innovative space sector

SPACE-TEC and SPACE-SCI

- Technologies for European non-dependence and competitiveness
- Strategic research clusters
- Generic space technologies
- EO and SatCom technologies
- In-orbit validation/demonstration
- Scientific instrumentation and technologies enabling space science and exploration

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



Alignment with the Space Strategy priorities

Maximise the benefits of space for society and the EU economy

Foster a globally competitive and innovative European space sector

Reinforce Europe's autonomy in accessing and using space in a secure and safe environment

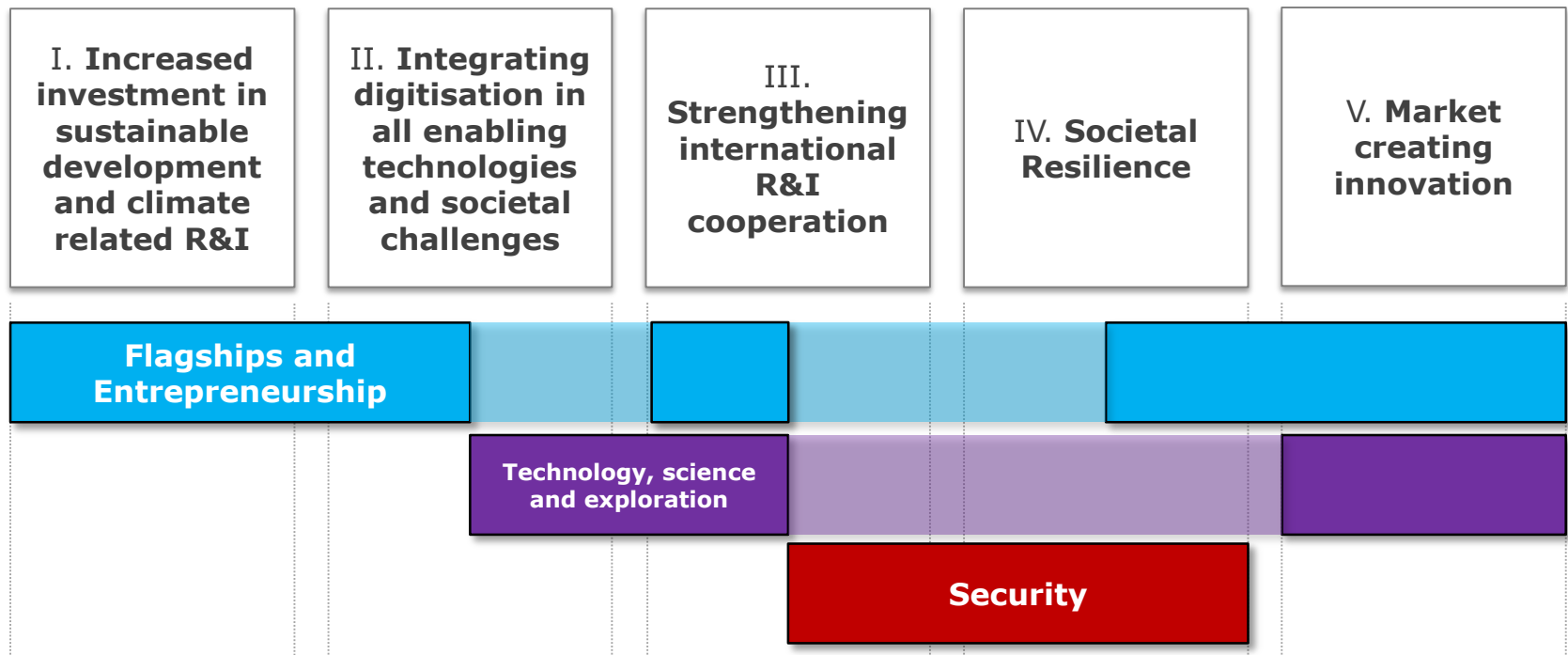
Strengthening Europe's role as a global actor and promoting international cooperation

Flagships and Entrepreneurship

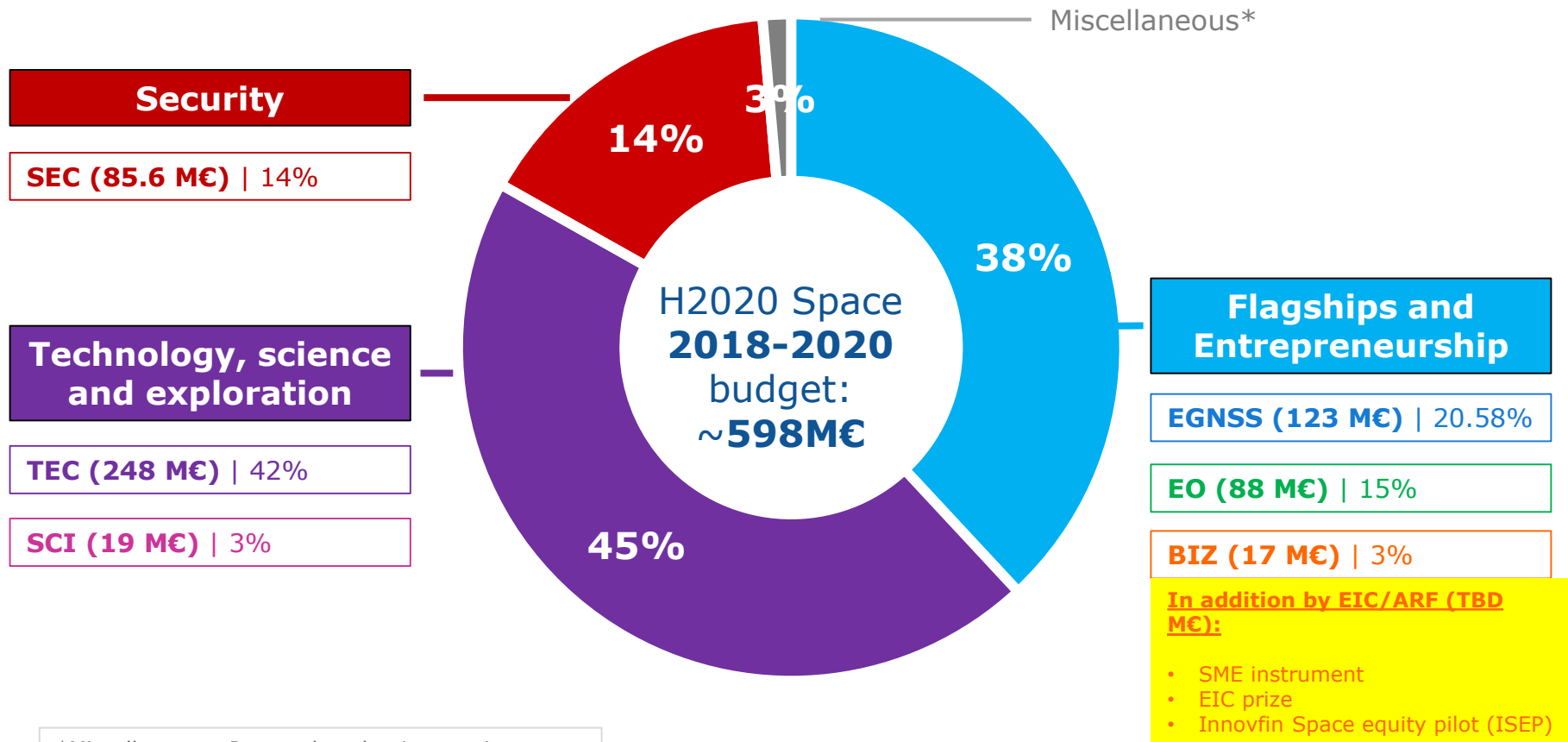
Technology, science and exploration

Security

Alignment with H2020 Strategic Programming orientations

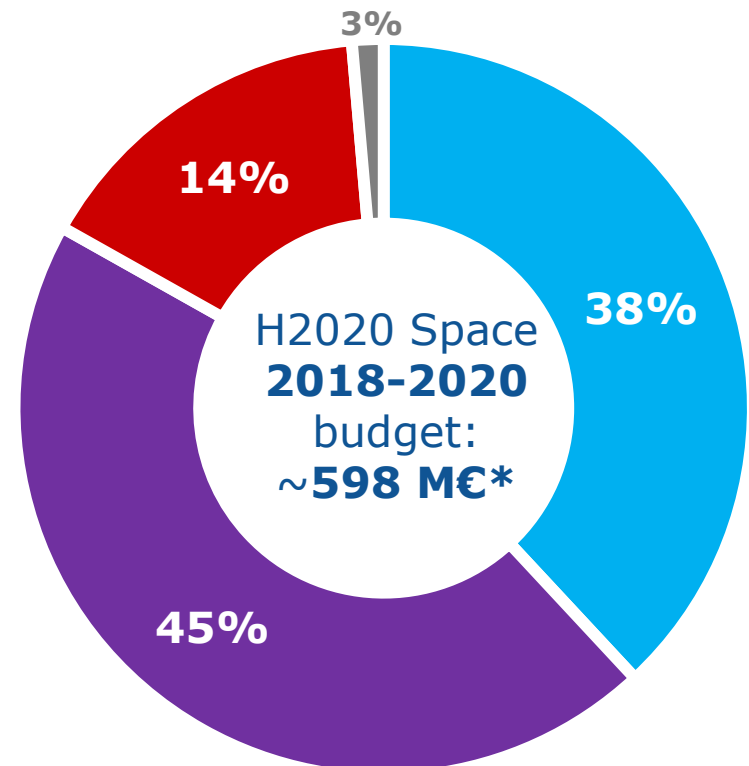
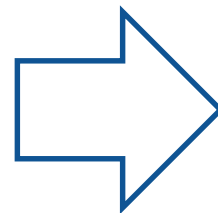
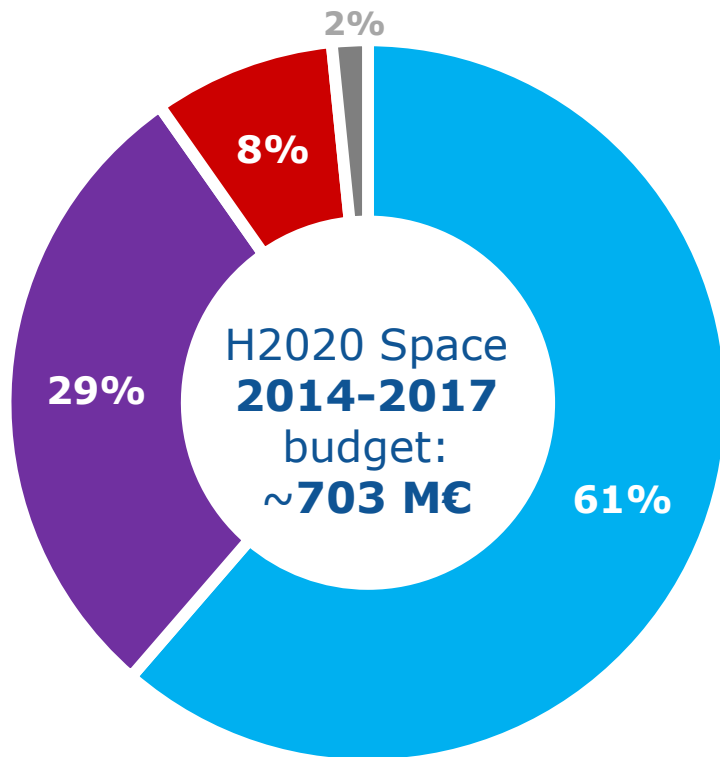


Indicative budget breakdown (2018-2020)



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

Budget breakdown: from 2014-2017 to 2018-2020



- Flagships and Entrepreneurship (EGNSS, EO, SME Inst & FTI)
- Technology, science and exploration (COMPET)
- Security (PROTEC & SST)
- Miscellaneous

- Flagships and Entrepreneurship (EGNSS, EO, BIZ)
- Technology, science and exploration (TEC, SCI)
- Security (SEC)
- Miscellaneous (incl FTI)

Earth observation



Call – Space 2018-2020

Earth Observation

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

Earth Observation

Topics	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
SPACE-05-EO-2019: Copernicus evolution – Research activities in support to a European operational monitoring system for fossil CO2 emissions	RIA		X	
SPACE-06-EO-2019: International Cooperation Copernicus – Designing EO downstream applications with international partners	RIA		X	
SPACE-24-EO-2020: Copernicus evolution – Mission exploitation concepts	RIA			X
SPACE-25-EO-2020: Copernicus big data algorithm factory	RIA			X

Space business and entrepreneurship



Indicative
budget:
Deadline:

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
SPACE-07-BIZ-2018: Space hubs for Copernicus market uptake	CSA	X		
SPACE-08-BIZ-2018: Space outreach and education	CSA	X		
SPACE-09-BIZ-2019: Space hubs – support to start-ups	CSA		X	
SPACE-26-BIZ-2020: Space hubs – support to start-ups	CSA			X

Other Actions for 2018-2020 (sub-set)

Other actions	Type of Action	Indicative budget (€ million)		
		2018	2019	2020
Activity 1 – EIC prize "Low cost space launch"	Inducement Prize			X
Activity 2 – InnovFin Space Equity Pilot (ISEP)	Financial Instrument			

Additional funding:

SME instrument (tbd) + EIC Prize: TBD M€

Access to Risk Finance: [tbd]

Competitiveness of the European Space Sector Technology and Science

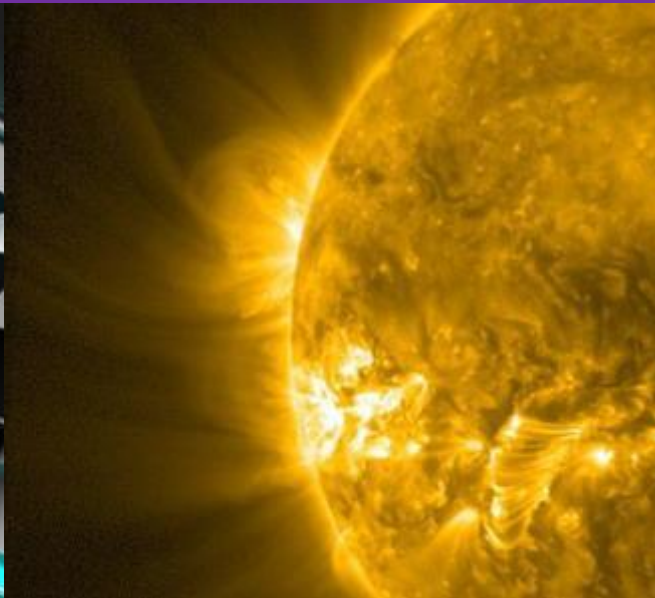
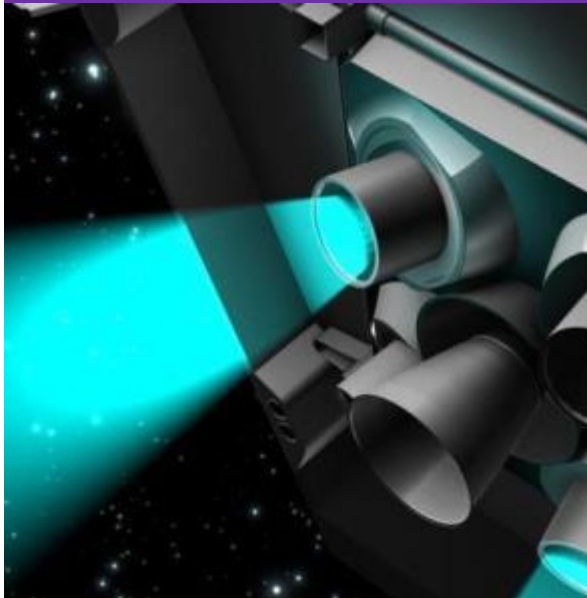


Image Credits: ESA

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	X	X	X
SPACE-11-TEC-2018: Generic space technologies	RIA	X		
SPACE-12-TEC-2018: SRC – Space Robotics Technologies	RIA	X		
SPACE-13-TEC-2019: SRC – In-Space electrical propulsion and station keeping	RIA		X	
SPACE-14-TEC-2018-2019: Earth observation technologies	RIA	X	X	
SPACE-15-TEC-2018: Satellite communication technologies	RIA	X		
SPACE-16-TEC-2018: Access to space	RIA	X		
SPACE-17-TEC-2019: Access to space	RIA		X	

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 design, integration and implementation	IA		X	X
SPACE-27-TEC-2020: SRC – Space Robotics Technologies	RIA			X
SPACE-28-TEC-2020: SRC – In-Space electrical propulsion and station keeping	RIA			X
SPACE-29-TEC-2020: Satellite communication technologies	RIA			X
SPACE-20-SCI-2018: Scientific instrumentation and technologies for exploration	RIA	X		
SPACE-30-SCI-2020: Scientific data exploitation	RIA			X

Other actions for 2018-2020

Other actions for 2018-2020 (sub-set)

Other actions	Type of Action			
		2018	2019	2020
Activity 3 – Programmatic Support Actions for the Strategic Research Clusters	2 grants to Identified Beneficiary		X	
Activity 4 – IOD/IOV – launch services	Procurement	X	X	X

Safe and secure environment



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

Secure and safe space environment

Topics	Type of Action			
		2018	2019	2020
SPACE-21-SEC-2020: Exploring concepts for space traffic management	CSA			X
SPACE-22-SEC-2019: Space Weather	RIA		X	
SPACE-23-SEC-2019: NEO	RIA			X

Other actions for 2018-2020 (sub-set)

Other actions	Type of Action			
		2018	2019	2020
Activity 5 – Space surveillance and tracking SST	Grant to Identified beneficiary	X	X	X
Activity 6 – Improving the Performance of SST at European Level	SGA - RIA	X	X	X

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014D0541&from=EN>

27.5.2014	EN	Official Journal of the European Union	L 158/227
<h2>DECISIONS</h2> <p>DECISION No 541/2014/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 establishing a Framework for Space Surveillance and Tracking Support</p> <p>THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,</p>			

... Council recalled that space assets have become indispensable for our economy and that their security must be ensured. It underlined the 'need for Europe [...] **to develop a European capability for the monitoring and surveillance of its space infrastructure and space debris**, initially based on existing national and European assets...

Two strands of SST activities funded by Horizon 2020:

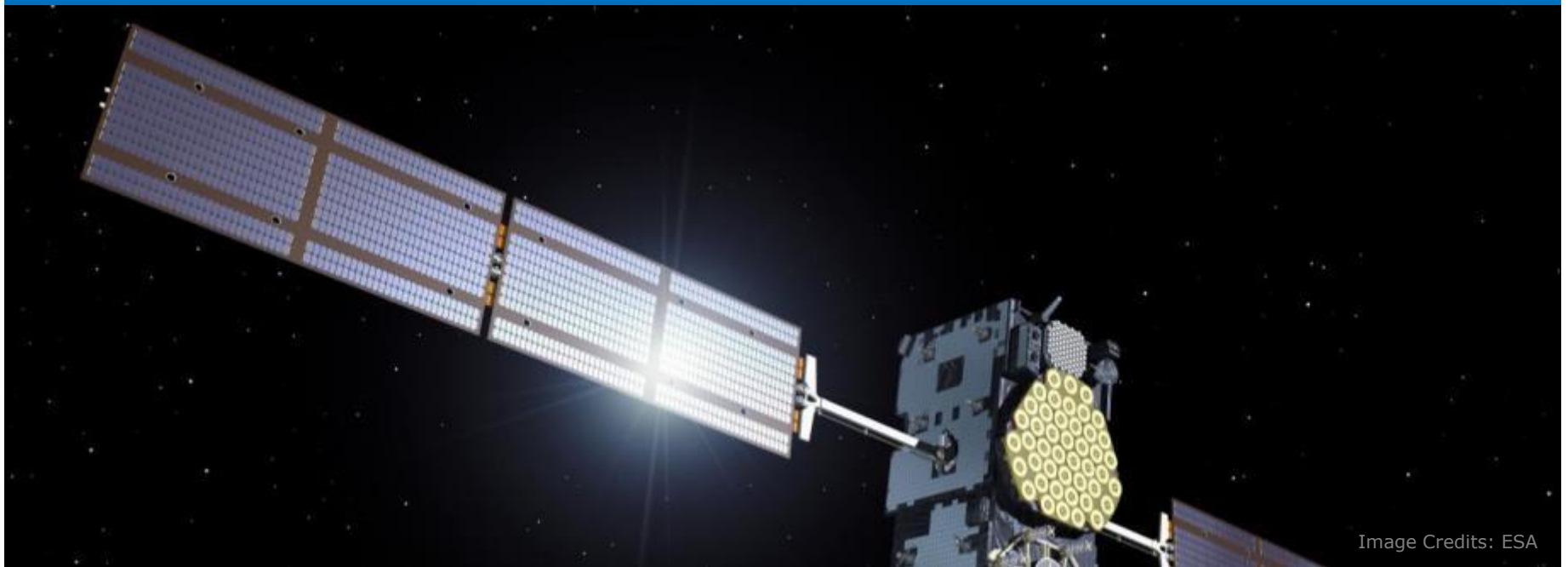
- **SST services:** activities within the SST support framework, which relate to the networking and using of existing national SST assets (**activity**)

These activities are funded by four budget lines (H2020/Space, H2020/Secure societies, Copernicus, GNSS)
- **SST evolution:** activities outside the SST support framework, which relate to the upgrade of existing and development of new SST sensors (**activity**)

These activities are funded exclusively by H2020/space

2017 call topics

Satellite Navigation – Galileo and EGNOS



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

Call – EGNSS market uptake 2019-2020

Topics	Type of Action			
		2018	2019	2020
SPACE-EGNSS-1-2019-2020: EGNSS applications fostering green, safe and smart mobility	IA		X	X
SPACE-EGNSS-2-2019-2020: EGNSS applications fostering digitisation	IA		X	X
SPACE-EGNSS-3-2019-2020: EGNSS applications fostering societal resilience and protecting the environment	IA		X	X
SPACE-EGNSS-4-2019: Awareness raising and capacity building	CSA		X	

Other actions for 2018-2020 (sub-set)

Other actions	Type of Action			
		2018	2019	2020
Activity 7 – Galileo Evolution, Mission and Service related R&D activities	Public Procurement		X	X
Activity 8 – EGNOS Mission and Service related R&D activities	Public Procurement		X	X
Activity 9 – GNSS evolution, infrastructure-related R&D activities	DA - ESA	X	X	X
Activity 13 – Horizon 2020 project monitoring and audits EGNSS	Expert Contracts		X	X



Themes	Opening dates	Deadlines
EO, BIZ, TEC, SCI	31 October 2017	6 March 2018
EO, BIZ, TEC, SEC, EGNSS	31 October 2018	12 March 2019
EO, BIZ, TEC, SCI, SEC, EGNSS	TBD	TBD

The associated **guidance documents** will be available at:

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



SME Instrument and Fast Track to Innovation

THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

HORIZON 2020

The graphic for Horizon 2020 features a glowing blue background with a central globe of the Earth. The globe is surrounded by a bright blue ring and radiating light beams, creating a sense of innovation and forward motion. The text "HORIZON 2020" is prominently displayed in white, bold, sans-serif capital letters across the center of the image.



HORIZON 2020

Thank you
for your attention

Space research and guidance documents

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

Published work programme 2016-2017

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

http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-leit-space_en.pdf

SME Instrument phases



Phase 1 - Concept & Feasibility Assessment



- **€50.000** in EU funding
- **Feasibility study**
- **Initial 10 page business proposal to be drafted**
- **6 months in duration**

Phase 2 – Innovation Project



- **Between €0.5M & €2.5M of EU funding**
- **Develop project through innovation strategy**
- **Draft a more developed 30 pages business plan**
- **1-2 years in duration**

Phase 3 – «Commercialisation»



- **No stand-alone phase!**
- **No direct funding**
- **Business coaching**
- **Facilitate access to risk finance**
- **Additional support & networking opportunities**
- **SMEs “Business Club”**

SME Instrument and Fast Track to Innovation: summary

WP 2016/2017			
	2018	2019	2020
Call for proposals	Indicative budget (€ million)	Indicative budget (€ million)	Indicative budget (€ million)
SME instrument	Indicative*: €57.93 million		
Fast Track to Innovation	3.70	3.70	3.70

** While these amounts are indicatively dedicated to the respective domain concerned, the SME Instrument will operate bottom-up and its budget will, as a whole, support firms developing the breakthrough, market-creating innovations that can occur, in particular, at the intersection between different technologies, industry sectors and scientific disciplines.*