

Jornada Connect-EU

Impulsa el teu projecte d' **R+D**
i **innovació** a Europa



Co-organitzadors:

ACCIÓ i AGAUR

Amb el suport de:

iberCaja 



LEIT "SPACE" Horizon 2020

6 de novembre de 2017



ACCIÓ



Generalitat
de Catalunya

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accio.gencat.cat

Horizon 2020

LEIT “Space”

Principals calls del programa

ACCIÓ



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Horizon 2020

Programa de suport a la Recerca i la Innovació europea.

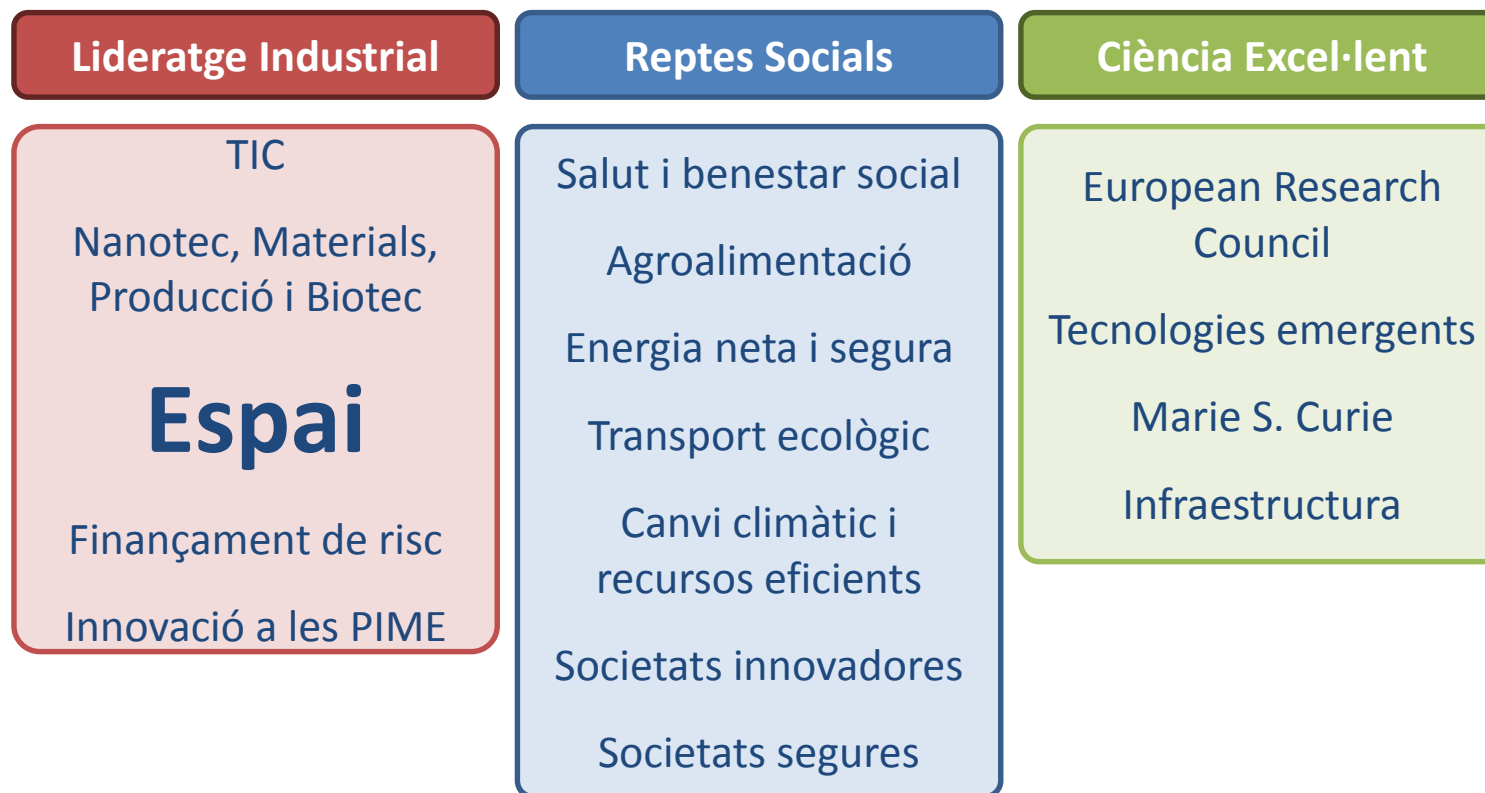
- Donar resposta a la crisi econòmica invertint en la creació d'ocupació i el creixement.
- Donar resposta a les preocupacions dels ciutadans sobre la seva qualitat de vida, seguretat i medi ambient.
- Millorar la posició de la UE en matèria de recerca, innovació i tecnologia.

Pressupost aproximat de **78.600 M€** durant el període **2014-2020**.



Horizon 2020

El programa subvenciona projectes enfocats en els següents àmbits:



Normativa de participació

Qui pot participar?

Qualsevol entitat jurídica establerta en qualsevol país de la UE, països associats o 3rs països*, com per exemple:

Universitats i grups de recerca.

Grans empreses.

Associacions d' empreses.

PIMES

Administracions Públiques.



1. Treballar en xarxa.
2. Acceptar que l' idioma de treball és l'anglès.
3. Assumir i compartir els riscos amb els altres socis de projecte.
4. Comprometre temps i recursos.

*només si ho permet el WP específic

Normativa de participació

Tipologia de projectes

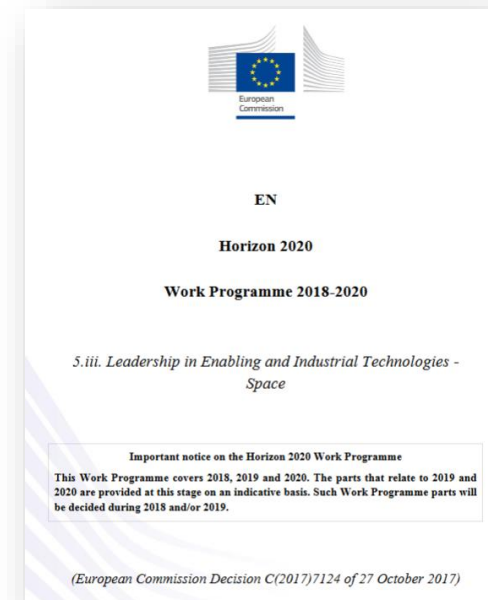
- ✓ Encaixen amb les línies estratègiques proposades
- ✓ Aporten valor afegit a nivell europeu i responen a les necessitats de millora existents a la Comunitat Europea.
- ✓ Respecten els principis ètics.
- ✓ Participació de 3 entitats independents de 3 estats membres de la UE o Estats Associats. (Excepte ERC, *SME instrument*, *co-fund* i *delegated acts*).
- ✓ Pressupost superior a 500.000€
- ✓ Durada d'entre 1 i 5 anys.

- × Aquells que no responen a activitats d'R+D o demostració, etc.
- × Aquells que tinguin caràcter local, regional o nacional.
- × Aquells que no representin una innovació real sobre els avenços ja existents a nivell europeu.
- × Aquells amb una dimensió pressupostària o temporal molt reduïda.

Leadership in Enabling and Industrial Technologies - SPACE

27 d'octubre 2017

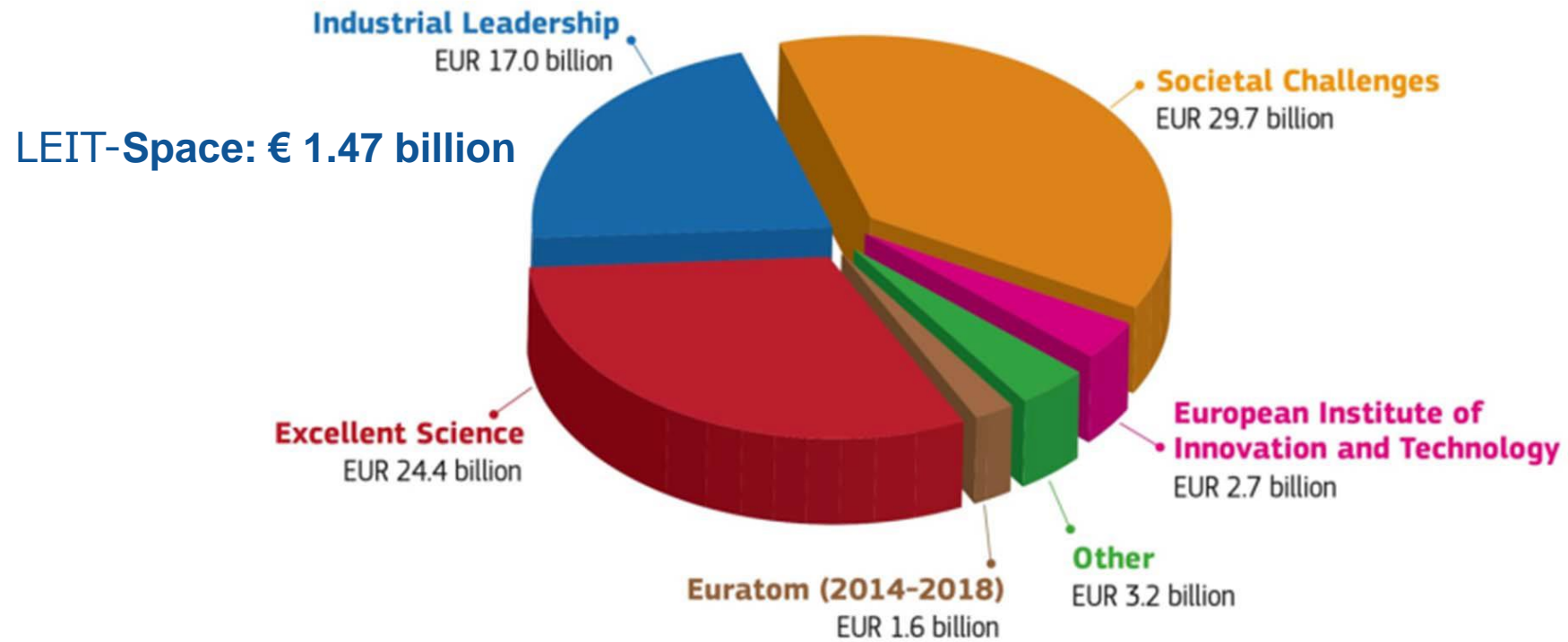
- Tecnologies, infraestructures, serveis i dades espacials.
- Cada cop més els ciutadans depenen més de la informació i dels serveis prestats des de l'espai.
- Proporciona dades de connectivitat per una economia més digital



http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-leit-space_en.pdf

Horizon 2020

HORIZON 2020 BUDGET (in current prices)



Dades de participació de Catalunya a Espai

DADES Horizon 2020 - CATALUNYA	
	TOTAL
Subvenció rebuda per Catalunya (€)	406.189.653 €
% sobre ES	27,46%
% sobre H2020	2,61%
Participació empresarial	28,62%
Subvenció rebuda ESPAI	6.334.705 €
% sobre ES	23,7%
% sobre H2020	2,50%
Participació empresarial	65,50%

- 19 entitats participants a la temàtica Espai Horizon 2020
- 23 projectes
- 5 projectes coordinats

Font: CDTI

Programes europeus de la temàtica d'Espai



Font: DG GROW/I1

Agències implicades



European
Global Navigation
Satellite Systems
Agency

Tasques :

Gestió de convocatòries i presentació de propostes, procés d'avaluació, preparació d'acord de subvenció, signatura d'acords de subvencions, tramitació d'informes, revisions, pagaments, auditories ...

Font: DG GROW/I1

Objectives de la temàtica Espai

- ❑ Habilitar la competitivitat europea, la **no dependència** i la innovació del sector espacial europeu.
 - Salvaguardar i desenvolupar una comunitat espacial i competitiva, sostenible i emprenedora i reforçar la no dependència europea dels sistemes espacials.
 - Potenciar la innovació entre els sectors espacial i no espacial
- ❑ Permetre **avenços en tecnologies espacials**.
- ❑ Permetre **l'exploració de dades espacials**.
- ❑ Facilitar la recerca europea en **suport de les associacions espacials internacionals**.
- ❑ L'aplicació de les tecnologies espacials serà compatible amb els objectius específics respectius de la prioritat "Reptes de la societat", si escau.

Space Strategy for
Europe adoptada el
26/10/2016.

Font: Work Program LEIT "Space"

On trobareu els topics?

Horizon 2020
Participant Portal:
<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>

Horizon 2020 Space
Work Programme

Calls for
Proposals

(A-Z) Sitemap About this site Contact Legal Notice Search English

RESEARCH & INNOVATION
Participant Portal

European Commission > Research & Innovation > Participant Portal > Calls

HOME FUNDING OPPORTUNITIES HOW TO PARTICIPATE PROJECTS & RESULTS EXPERTS SUPPORT

LOGIN REGISTER

EU Programmes 2014-2020

Search Topics

Updates

Calls

H2020

3rd Health Programme

Asylum, Migration and Integration Fund

Consumer Programme

COSME

European Statistics Programme

Hercule III Programme

Internal Security Fund - Borders

Internal Security Fund - Police

Justice Programme

Pilot Projects & Preparatory Actions

Promotion of Agricultural Products

Research Fund for Coal & Steel

Rights, Equality and Citizenship Programme

Union Civil Protection Mechanism

Due to maintenance activities Participant Portal services might be unavailable for short periods of time on

- Friday 3rd of November, between 20:00 and 23:59 (CET).
- Saturday 4th of November, between 09:20 and 10:00 (CET).

We apologise for any inconvenience this may cause.

Calls for Proposals

Horizon 2020

Advanced search for topics
Calls for tenders on TED

- Leadership in enabling and industrial technologies (LEIT)
 - Information and Communication Technologies
 - Nanotechnologies
 - Advanced materials
 - Biotechnology
 - Advanced manufacturing and processing
 - Space
 - Access to risk finance

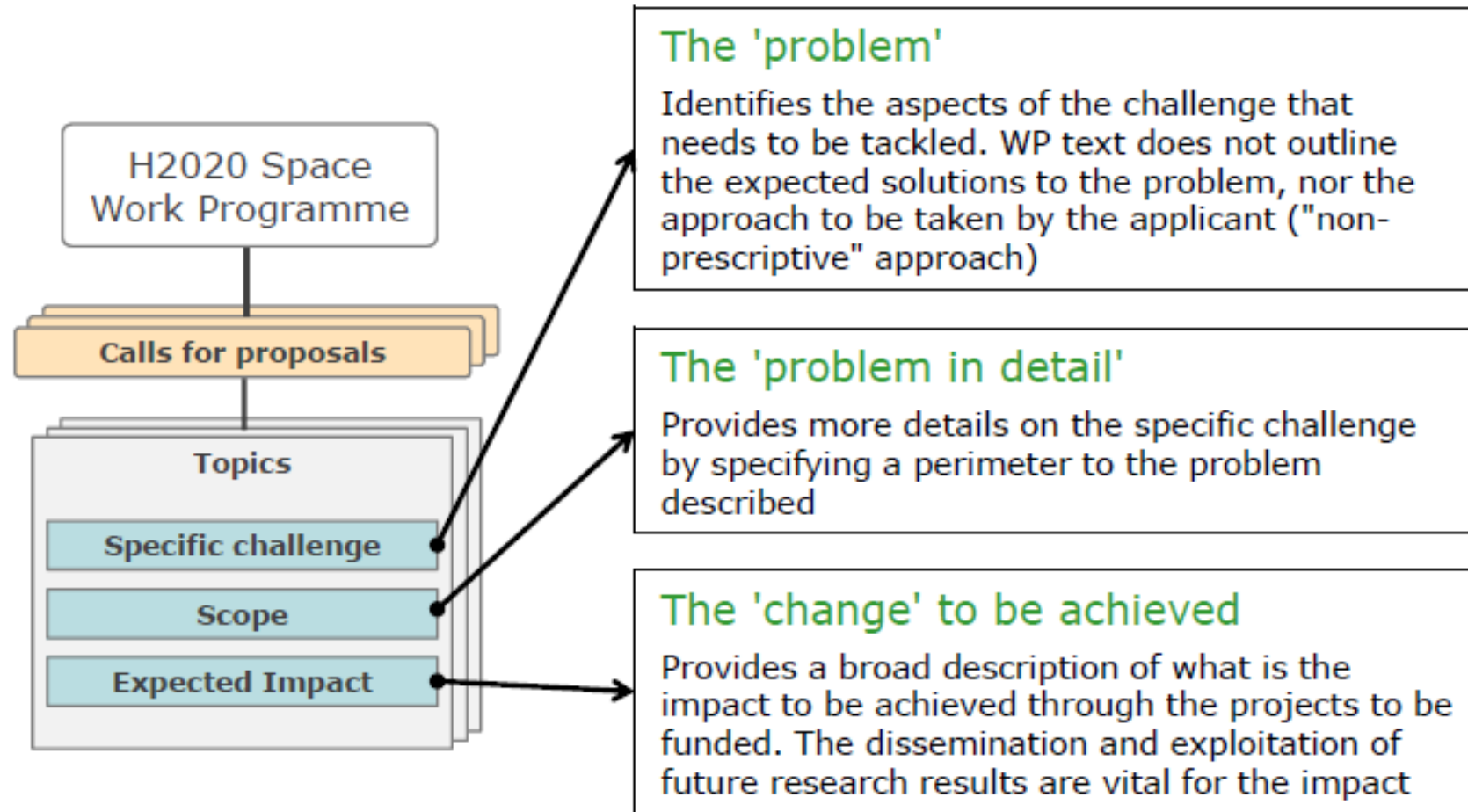
Status Calls with forthcoming topics Calls with open topics Calls with only closed topics

Sort by Call title Call identifier Publication date Filter a call FILTER

Industrial Leadership Space 2018-2020 H2020-SPACE-2018-2020 Publication date: 27 October 2017	Industrial Leadership EGNSS market uptake 2019-2020 H2020-SPACE-EGNSS-2019-2020 Publication date: 27 October 2017	Industrial Leadership Horizon 2020 dedicated SME Instrument 2016-2017 H2020-SMEInst-2016-2017 Publication date: 14 October 2015
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In addition to the search facilities, the full list of H2020 Calls can be found [here](#).

Calls i topics



Font: DG GROW/I1

Tipus d'accions a Horizon 2020

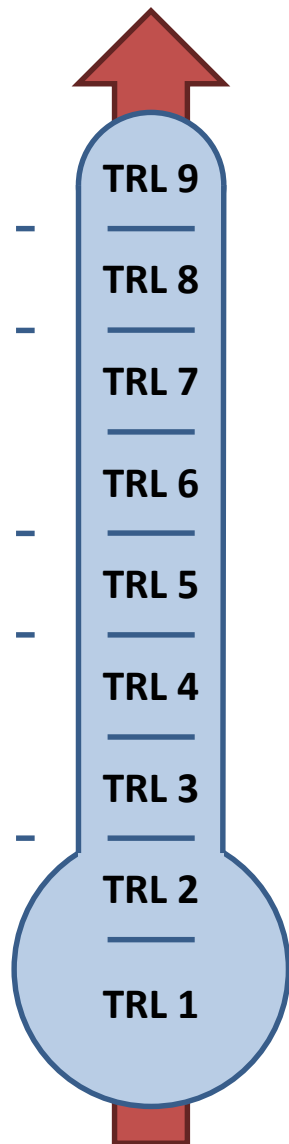
- ❑ **Research and innovation actions (Funding rate: 100%):** Són projectes realitzats en consorcis integrats per diverses organitzacions procedents de diferents països, que pretenen **desenvolupar coneixements nous i/o explorar la viabilitat de noves tecnologies**, productes o solucions. Inclouen des **d'activitats de recerca bàsica i aplicada**, fins a validació de prototipus i demostració en entorns controlats.
- ❑ **Innovation actions (Funding rate: 70% - exception: 100% for nonprofit legal entities):** són projectes a consorcis transnacionals destinats a validar la viabilitat tècnica i econòmica d'una tecnologia, producte, procés, servei o solució **en un entorn operatiu industrial** o d'altres tipus mitjançant prototipus o demostradors.
- ❑ **Coordination and support actions (Funding rate: 100%):** es tracta d'accions d'acompanyament que tenen com a objectiu **coordinar o donar suport a altres activitats o polítiques de recerca**. Poden ser accions de network entre projectes, intercanvis, conferències, estudis sobre determinats temes, etc.

Full detailed description can be found in the **General Annexes 20 – part D** of the Work Programme 2016- 2017:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016-2017/annexes/h2020-wp1617-annex-ga_en.pdf

TRL

- Market expansion
- Initial market introduction
- Pilot production & demonstration
- Prototyping & incubation
- Concept validation
- Invention



TRL 9

TRL 8

TRL 7

TRL 6

TRL 5

TRL 4

TRL 3

TRL 2

TRL 1

(2007 – 2013)

(2014 – 2020)





Horizon 2020 Space Work Programme 2018 - 2020

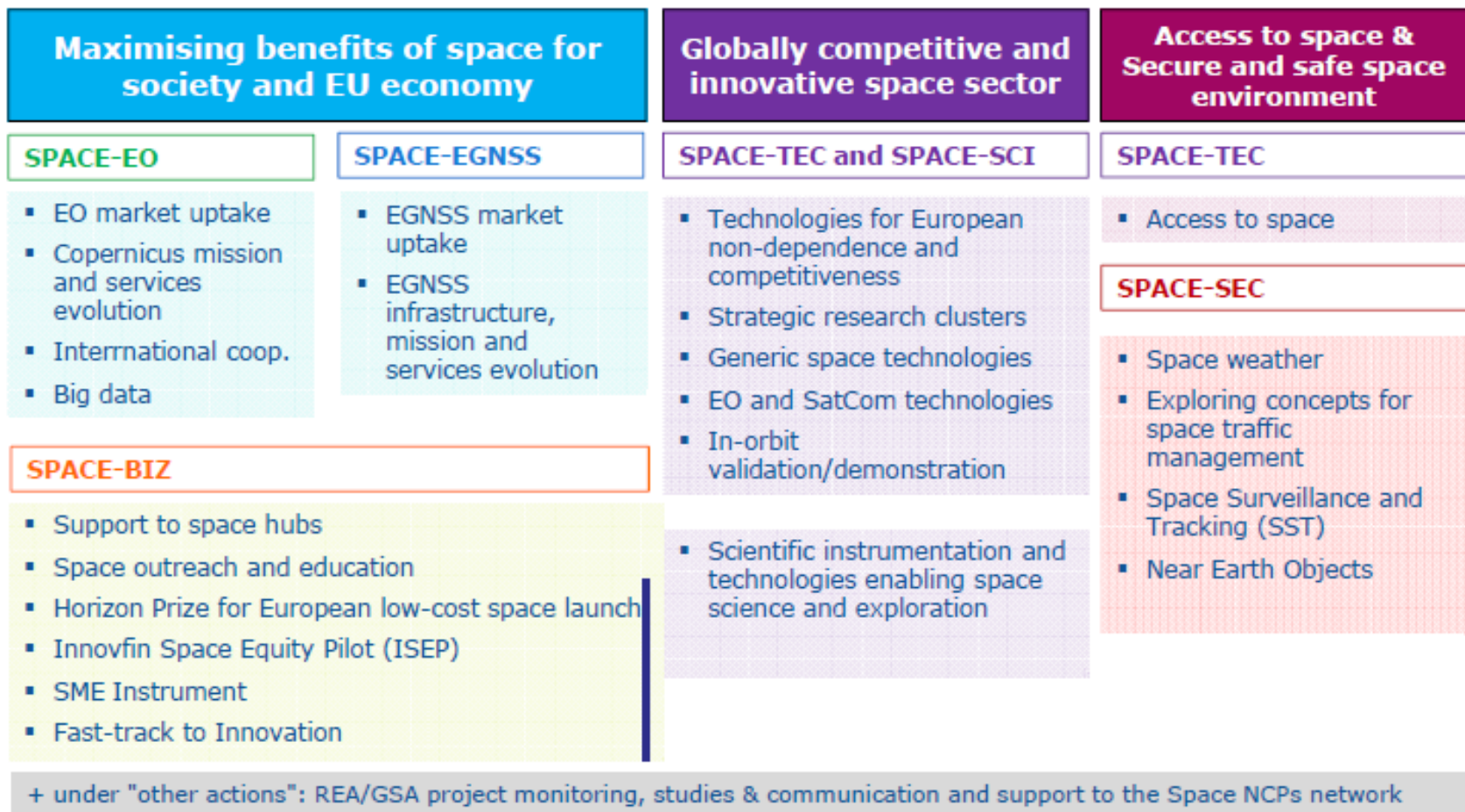
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Principals blocs del programa



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SPACE Calls

Earth observation

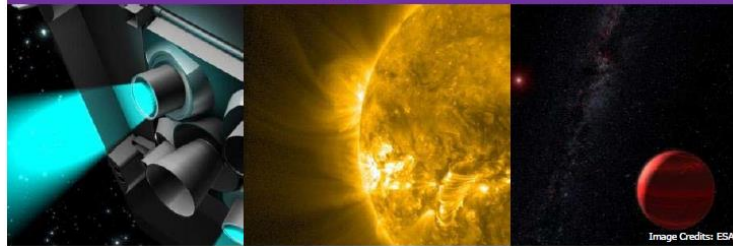


Call 2018: 22 M€

2018-2020: 88 M€

Data de tancament: 3 Març 2018

Competitiveness of the European Space Sector Technology and Science



Call 2018: 78 M€

2018-2020: 269 M€

Data de tancament: 3 Març 2018

Space business and entrepreneurship



Call 2018: 4 M€

2018-2020: 136 M€

Data de tancament: 3 Març 2018

SPACE Calls

Safe and secure environment



2018-2020: 85 M€

Data de tancament: 12/03/2019

Satellite Navigation – Galileo and EGNOS



2018-2020: 123 M€

Data de tancament: 12/03/2019

Font: DG GROW/I1

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	9.0	9.0	9.0	
SPACE-02-EO-2018: Copernicus evolution – Mission exploitation concepts	CSA	8.0			
SPACE-03-EO-2018: Copernicus evolution – Preparing for the next generation of Copernicus Marine Service ocean models	RIA	5.0			
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	
SPACE-05-EO-2019: Copernicus evolution – Research activities in support to a European operational monitoring system for fossil CO2 emissions	RIA		9.0		
SPACE-06-EO-2019: International Cooperation Copernicus – Designing EO downstream applications with international partners	RIA		5.0		
SPACE-24-EO-2020: Copernicus evolution – Mission exploitation concepts	RIA			8.0	
SPACE-25-EO-2020: Copernicus big data algorithm factory	RIA				10.0

Font: DG GROW/I1

Space business, entrepreneurship, outreach and education

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	2.0		
SPACE-08-BIZ-2018: Space outreach and education	CSA	2.0		
SPACE-09-BIZ-2019: Space hubs – support to start-ups	CSA		2.0	
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

Font: DG GROW/I1

Competitiveness of the European Space Sector Technology and Science

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	

Font: DG GROW/I1

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			2.0
SPACE-22-SEC-2019: Space Weather	RIA		9.0	
SPACE-23-SEC-2019: NEO	RIA			4.0

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	1.8	1.9	1.9
Activity 6 – Improving the Performance of SST at European Level	SGA - RIA	15.0	20.0	30.0

Font: DG GROW/I1

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		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)				
Other actions	Type of Action			
		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

Font: DG GROW/I1

Dates de tancament

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

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Funded by the European Union

Search ...



PERASPERA

PERASPERA:Space Robotics Technologies



Welcome

News

What is Space Robotics?

The Strategic Research Cluster and Operational Grants

PERASPERA Programme Support Activity

High Level SRC Roadmap

Space 2016 H2020 Call on Space Robotics Technologies COMPET-4-2016

SRC Operational Grants

Related Links

Question & Answers

PERASPERA Education material

Documents call 2 SPACE-12-TEC-2018

26.10.2017 | All relevant documentation for writing a proposal in the topic SPACE-12-TEC-2018 of the SRC Space Robotics Technologies will be public in this page. Guidelines: 2018 Call Compendium of SRC activities Relevant documents of the first call, necessities for writing the 2nd call proposals: OG1 European Space Robot Control Operative System ESROCOS: (<http://www.h2020-esrococ.eu/>) PDD: ESROCOS_D2.2_PreliminaryDesign_V1.1 ICD: ESROCOS_D2.3_InterfaceControlDocument_V2.0 OG2 European Robotic Goal-oriented ... [Read more »](#)



WELCOME

EU Project PERASPERA: Plan European Roadmap and Activities for Space Exploitation of Robotics and Autonomy

The project "PER ASPERA (ad ASTRA)" (Latin meaning "Through hardships to the stars") is funded by a grant by the European Union through the Horizon 2020 Programme.

www.h2020-peraspera.eu

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COPÉRNICUS



- ❑ **11 Oct** Draft work programme available
- ❑ **27 Oct** Work programme adoption and publication.
http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-leit-space_en.pdf
- ❑ **31 Oct** Space call opening
- ❑ **8-9 Nov** European Space Week, Tallin <http://www.eusw2017.eu/>
- ❑ **18 Dec** **Infoday Espai, Barcelona**
- ❑ **6 March 2018** Space call deadline
- ❑ **Mid 2018** Work Programme update (including details for 2020)

A broad range of services for growth-oriented SMEs



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INNOVATION SUPPORT

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Innovation Management Services

Technology transfer

www.een.cat



Participation of GeoNumerics in Horizon 2020 & success case: the mapKITE project

P. Molina

GeoNumerics
Av. Carl Friedrich Gauss 11
Parc Mediterrani de la Tecnologia
E-08860 Castelldefels (Spain)

AGENDA

- GeoNumerics:
 - Brief about us
 - Strategy to face participation in Horizon2020
 - Results
- MapKITE
 - Project description
 - Roadmap: from idea to market

GeoNumerics' primary goal is to develop state-of-the-art geomatic software and deliver outstanding services to the geomatic community.

- (kinematic) geodesy + (RT & PP) navigation
- remote sensing & (aerial & terrestrial) photogrammetry
- GPS and GPS/INS trajectory determination



INNOVATIVE SME

Valid until Dec 31st 2018



Awarded the “Innovative SME” seal by the Spanish Ministry of Economy and Knowledge (2015-12) for the period 2016-2018.

STRATEGY FOR HORIZON 2020: ROLES IN PARTICIPATION

- **Leadership or high involvement** in proposals that are highly-aligned with GeoNumerics' goals.
 - H2020 becomes a “capitalizer” in the direction of GN's R&D strategy
 - Key: proper selection and engagement by partners

- **Participation in third-party proposals** in which the contribution is aligned with our capacities.
 - H2020 becomes support tool to on-going GN development
 - Key: engage to successful coordinators

STRATEGY FOR HORIZON 2020: FEW KEYS ABOUT...

- Proposal writing,
 - **Clear & synthetic** – assume reviewers will have little time for the review...
 - **Technical but focused** – non-technical audience shall understand
 - The **first page** is the page
 - Clear **differentiator** & innovation
 - At the end, **cross-check** against the goals of the call
- Consortium composition,
 - Start **as soon as possible**: partners, definition, overall & specific goals, WPs
 - **The “right” team**: countries, type of partners vs necessary tasks...
 - **Project matches call** – do not make the call match to your project.
 - **Support letters** are crucial

RESULTS: H2020 LEIT IN SPACE (Galileo)

Acronym	Project name	Detail
COREGAL	Combined Positioning-Reflectometry Galileo Code Receiver for Forest Management	H2020-GALILEO-3-2014, ref. 641585 2015-01-01 to 2016-12-31
SAT406M	An EGNSS application providing an end-to-end solution based on the SAR/Galileo service and particularly using the Return-Link-Message (RLM), to improve the mobility and safety of citizens	H2020-GALILEO-2-2014, ref.640387 2015-02-01 to 2018-01-31
mapKITE	EGNOS-GPS/Galileo-based high-resolution terrestrial-aerial sensing system	H2020-GALILEO-2-2014 2015-03-01 to 2017-03-01
M2M	MapKITE to market	SMEInst-04-2016-2017, ref.762692 (EASME) 6 months in 2017
GIMS	Geodetic Integrated Monitoring System	H2020-GALILEO-GSA-2017-1, ref. 776335

NOTE: HIGH COMPETITIVENESS

THE HORIZON 2020 PROJECT IN A NUTSHELL

Acronym: mapKITE

Name: EGNOS-GPS/Galileo-based high-resolution terrestrial-aerial mapping system

- Length: March, 1st 2015 → May, 31st 2017
- Consortium: 10 participants - 7 EU (AT, DE, ES, PT), 1 Euro-non-EU (CH), 2 intl (BR)
- Cost: 1 530 269 € (872 192 € EU-funding)

Product validation



Testing



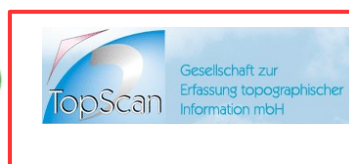
Galileo



Image processing Business model



Adoption in Brazil



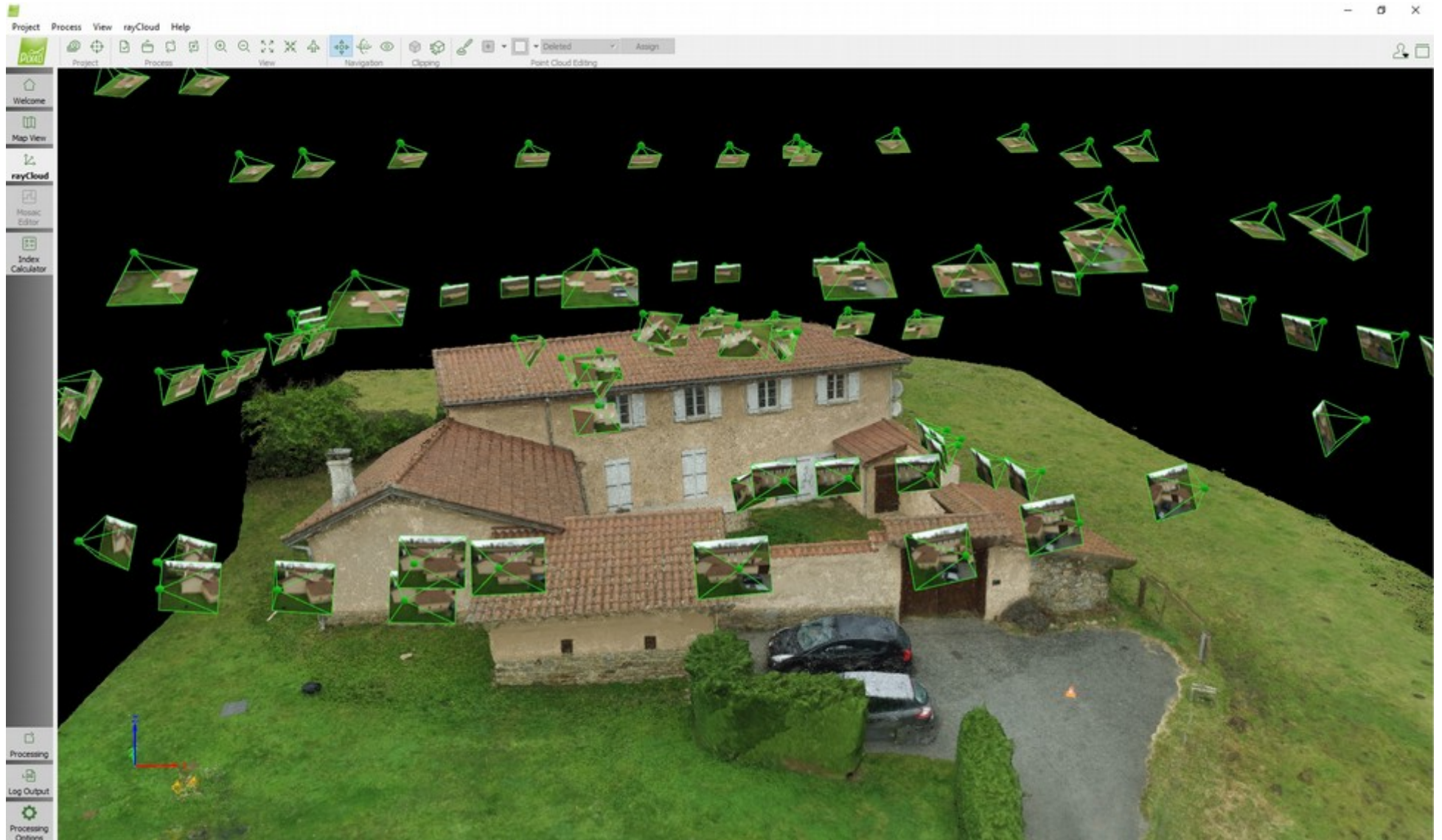
UAV + MMS + processing

MAPPING REVOLUTION: THE UNMANNED TECHNOLOGY

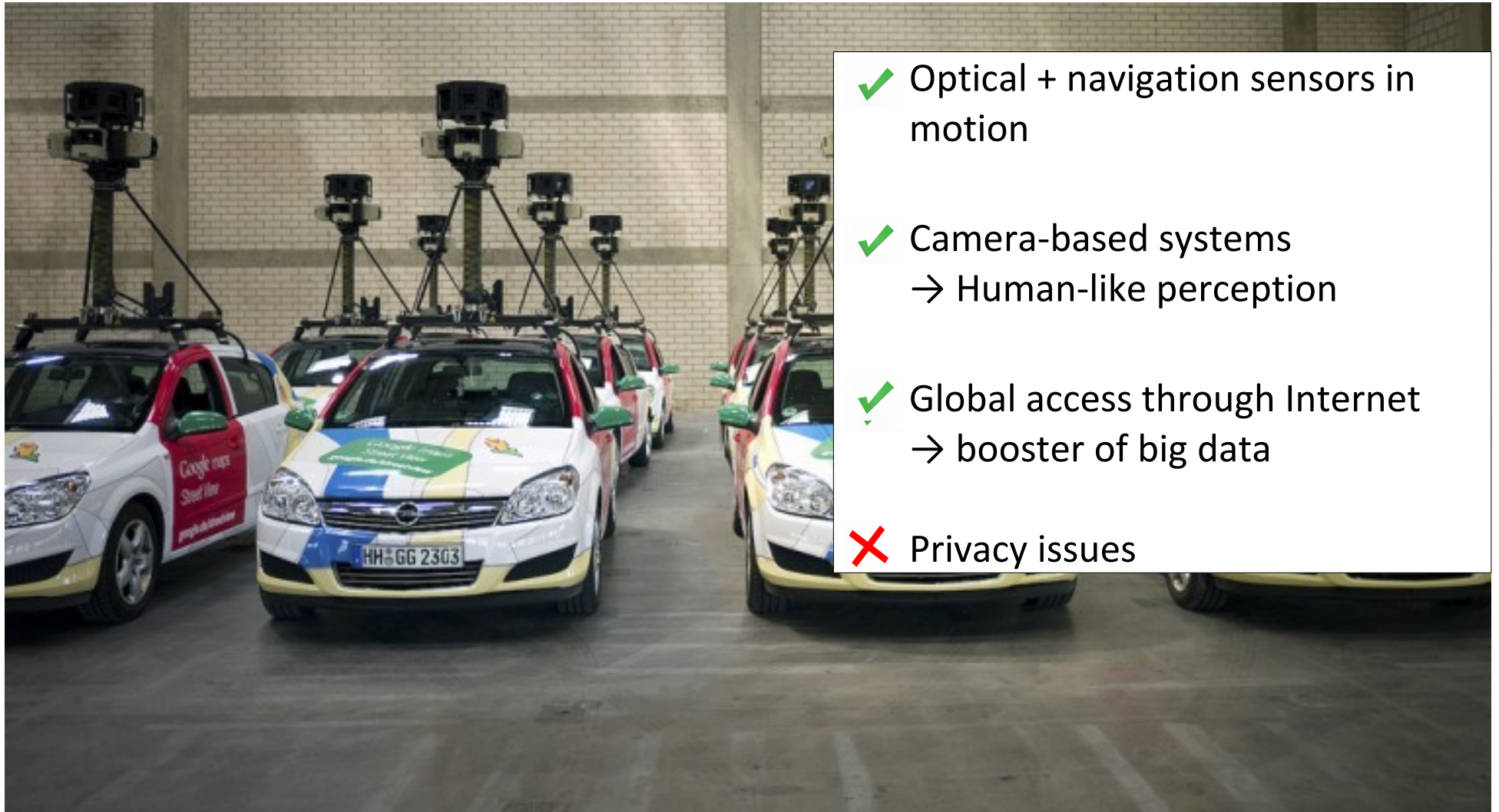


- ✓ Autonomous vs manual
→ GNSS is fundamental
- ✓ Boost of Robotics & mini-sensors
- ✓ Democratization of technology
- ✗ Regulations lag behind tech

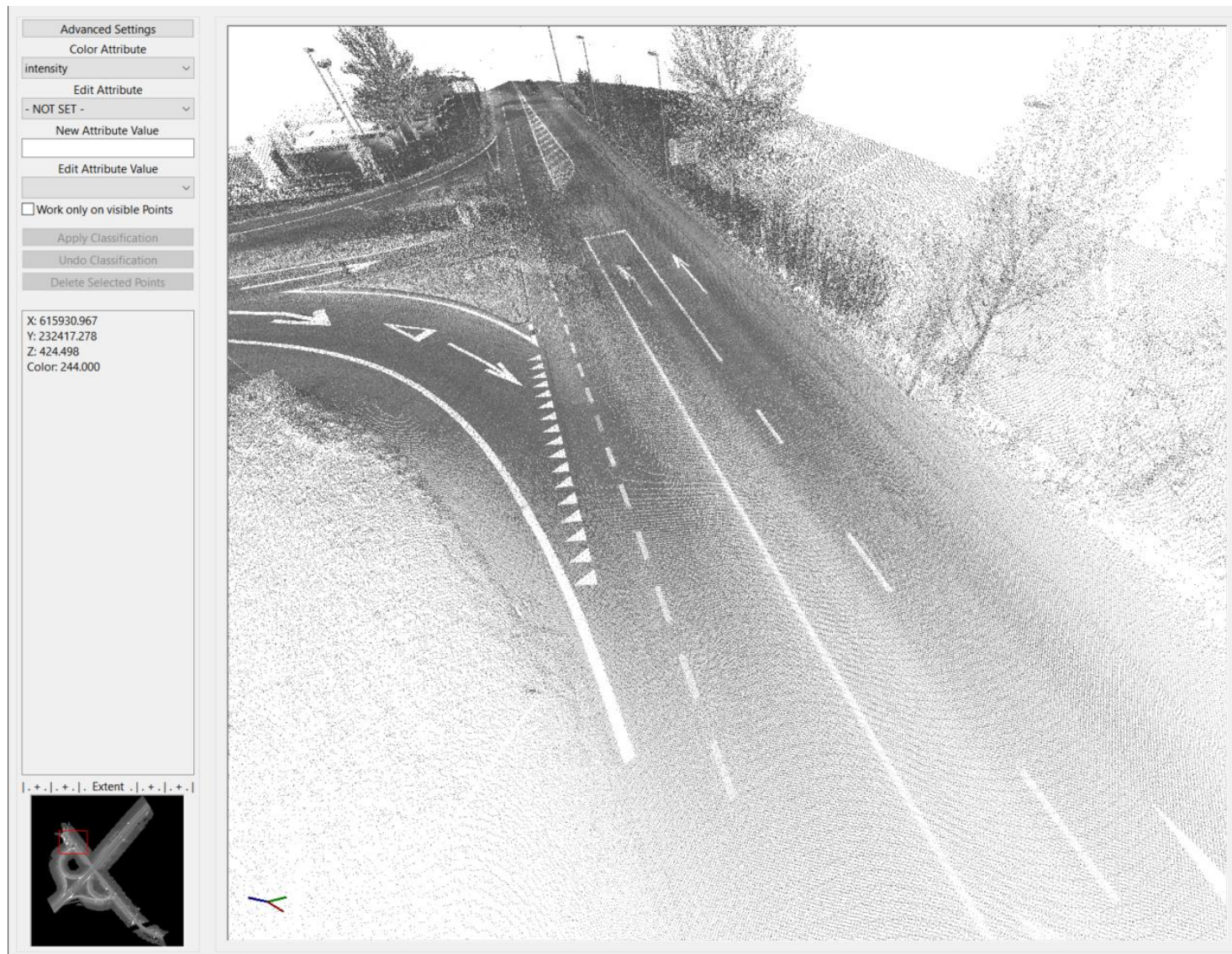
MAPPING REVOLUTION: THE UNMANNED TECHNOLOGY



MAPPING REVOLUTION: MOBILE MAPPING SYSTEMS

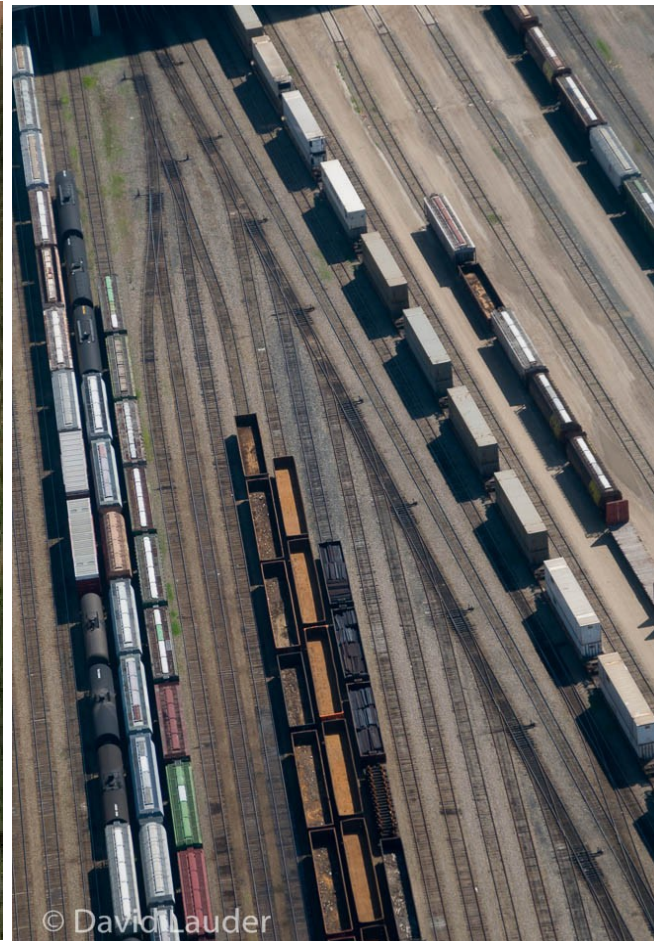


MAPPING REVOLUTION: MOBILE MAPPING SYSTEMS



THE TARGET APPLICATION: CORRIDOR MAPPING

- transport (road, rail, river)
- environment (coast, river)
- energy (pipelines)



EGNOS & GALILEO: CRUCIAL FOR DRONES & MAPPING

EGNOS: solution for accurate & safe drone navigation

- Free Differential GPS corrections (L1), wide adoption
- Accuracy: from 15/20 meters → 3 / 4 meters
- Safety against GNSS integrity events

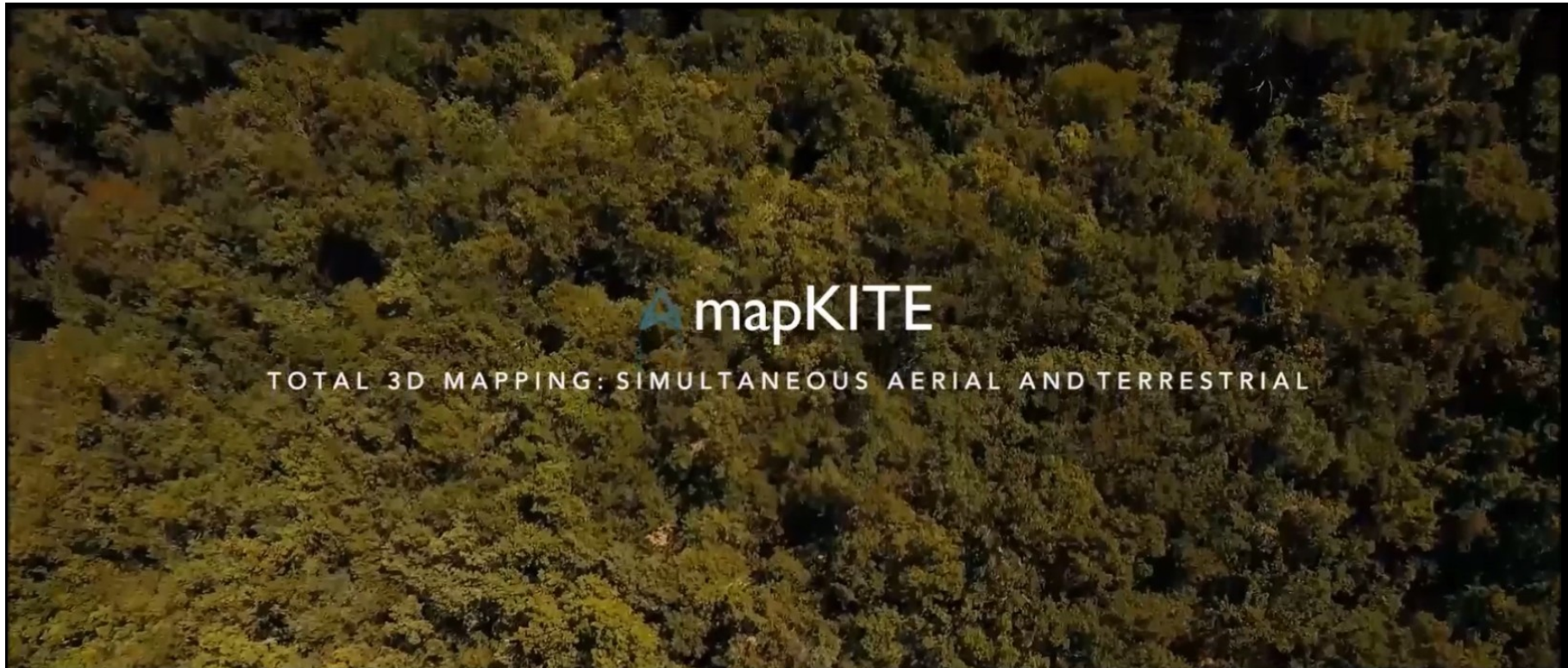


Galileo E5 AltBOC:

- Available in current constellation
- < 2cm range noise (< 70cm for GPS)
- Multipath resiliency:
 - Error < 1m within 30m multipath
 - NO ERROR further than 30m multipath



A TANDEM AIR-GROUND 3D CORRIDOR MAPPING CONCEPT



H2020 AS ENABLER OF THE MAPKITE ROADMAP

- MapKITE is a **patented** method by GeoNumerics since 2012
 - Spain (ES239454), USA (14/417,435) – EU and BR filed
- **Horizon 2020**
 - From concept to TRL7 without external funding & small internal aiding
 - Focus on technical feasibility & prototype ... but also get to know your market!
 - Cross-fertilizing with other companies
 - Awareness about the technological state-of-the-art
- **SME Instrument**
 - Successful Phase 1: business definition & feasibility, market in-depth study
 - Applied for Phase 2

Idea-to-market



THANKS FOR YOUR ATTENTION

pere.molina@geonumerics.com

