

Strategic Research and Innovation Agenda for Horizon Europe and Critical Space Technologies Non-dependence process REACH Stakeholder day

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## **Horizon Europe**

\* This envelope includes EUR 3.5 billion allocated under the InvestEU Fund.







Structure

Specific objectives of the Programme

- Optimise the Programme's delivery for impact in a strengthened ERA Pillar 1 Pillar 2 Pillar 3 Ĉ, £0} **Open Science Open Innovation** Global Challenges and Industrial Competitiveness European Research Council European Innovation Council Health Inclusive and Secure Society Digital and Industry European innovation ecosystems Marie Skłodowska-Curie Actions Climate, Energy and Mobility  $\overline{O}$ Food and natural resources European Institute of Innovation Infrastructures and Technology Joint Research Centre Strengthening the European Research Area Reforming and Enhancing the European R&I system Sharing excellence
- Commission proposal, June 2018
- Pillar 2, Cluster "Digital, Industry and Space" (15 M€)
- Intervention area "Space"

### **Consultation for HE**





Space

SRIA



A Strategic Research and Innovation Agenda for EU-funded Space research supporting competitiveness

Outline

19-03-2019

- Guidance for space-related Horizon Europe Programmes
- Outline will be developed further
  - What, Why, How
- REACH is named on Chapter 3.3 New industrial processes and production tools

#### 3.3 New industrial processes and production tools

The arrival of large constellations of smaller satellites and new user expectations like faster responsive missions, calls for major changes in the way Manufacturing, Assembly, Integration and Testing (MAIT) is performed while complying with the REACH regulation. Higher production volumes, on-demand flexible manufacturing and cost reduction are key elements.

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- Next steps
  - Consultation Platform meeting: 27-28/6
  - STEPP consultation workshop



- Space Strategy for Europe
  - "In the context of EU research programmes, the Commission will give priority to action addressing the vulnerability of European supply chains by supporting the development of critical space components, systems and technologies associated with technological non dependence", [COM(2016) 705 final, 26.10.2016, p. 6]

#### • Horizon 2020

 "The space sector is a strategic asset contributing to the independence, security and prosperity of Europe and its role in the world. Europe needs non-dependent access to critical space technologies, which is a conditio-sine-qua-non for achieving Europe's strategic objectives", [H2020 Space WPs]

#### Horizon Europe

• From Broad Lines of Areas of Intervention Space: [...] To secure EU technological leadership and autonomy, improved supply chain sustainability, reduced dependence on non-EU critical space technologies [...], [Commission proposal COM(2018) 436 final, 7.6.2018]

## Coordination



- Critical space technologies for non-dependence
  - Commission-ESA-EDA Joint Task Force, 2009
  - Non-dependence process cycles: 2009, 2011, 2014/15, 2016, **2019**
- Space technology road mapping and stardardisation
  - Participation to European Space Technology Harmonisation
    - Co-signature of the European Space Technology Master Plan
  - European Space Component Coordination (ESCC)
    - ESCC Space Components Steering Board (SCSB), observer
    - ESCC Component Technology Board (CTB), observer
  - Mandate M/496 to CEN/CENELEC for Space Standardisation
  - European Coordination for Space Standardisation (ECSS)
    - ECSS Steering Board, observer

Space



#### **European strategic non-dependence process**

- A coordinated and coherent European institutional approach
  - Targeting R&D of critical space technologies and products for European strategic non-dependence
- Commission, ESA and EDA run the European Non-Dependence process through a Joint Task Force (JTF) since 2009
  - Objective: map status and identify actions, to be implemented through respective R&D programmes
  - Involves all stakeholders through dedicated meetings
- 4 cycles conducted
  - 2009, 2011, 2014/15 and 2016
- 4 Lists of Actions produced
  - 2010-2011, 2012-2013, 2015-2017, 2018-2020

Space

- latest published in January 2017
- COM, ESA and EDA will conduct the 5<sup>th</sup> cycle in 2019



#### Actions for 2018-2020





- Microelectronics
  - FPGAs (65nm and 28nm)
  - ASICS (65nm and 28nm)
  - DAC-ADC
  - uControllers
- Power
  - Solar Cells
  - Discrete Power Components (Si, GaN, SiC)
- RF Equipment
  - TWTs
  - RF equipment (LNAs, SSPAs, Mixers...)
- EEE Components
  - Passives
  - RF GaN transistors (0.5, 0.25, 0.15um)
  - Novel Packaging
  - Space Qualification through ESCC standards
- Mechanisms
- Materials
  - Carbon Fibers
- Optoelectronics
  - Photonics
  - Detectors
  - Lasers
- Propulsion
- Structures and Thermal

## Implementation





Technologies for European Non-Dependence and Competitiveness (Critical Space Technologies)

SPACE-10-TEC-2018

**Guidance Document for** 

Horizon 2020 Work Programme 2018-2020"

Final

26/10/2017

- Approached individually
- EU Research Framework
  Programmes
  - FP7, Horizon 2020
  - Horizon Europe (in preparation)
- FP7: 26 projects, budget 51,4 M€
- H2020 Space WPs 2014-2018: 18 projects, budget 64,4 M€
- H2020 Space WPs 2019-2010: 26M€ indicative budget

### **REACH related action**



#### 5.9.3 V1 - Obsolescence of materials and process

Description and needed Action	The activity aims towards green and sustainable long-term replacement solutions facing regulatory (e.g. REACH, RoHS) or commercial obsolescence risk. This covers e.g. alternative materials for metallic anodizing and passivation, protective and hardener coatings free of Cr3+ Cr6+, alternatives for SnPb solder, etc.
	Space environment qualification of the associated processes is needed. Dependence is also to be identified outside the REACH domain through ITAR, e.g. the case of black Kapton.
Estimated Initial TRL	N.A.
Target TRL	7

- As proposed at the Mapping Meeting on 24 May
- Not supported by industry as proposed
- Next step: draft List of action for 2021-2023

European Commission