H2020 Infoday

Toulouse, Sept 13, 2017

AIRBUS ThalesAlenia Space

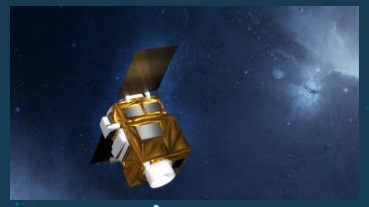
a Thales / Leonardo company

AIRBUS DEFENCE & SPACE

Space Systems

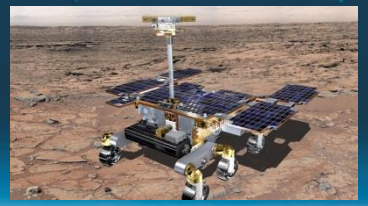
COUNT ON US FOR ALL ASPECTS OF

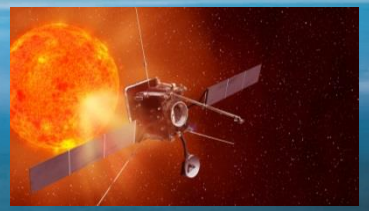
space












With cutting-edge design, production and test capabilities, Space Systems possesses all expertise and technologies required for designing, developing and operating major Space systems:

From Space equipment to the in-orbit delivery of satellites, planetary or deep-space missions and International Space Station activities.

AIRBUS DEFENCE & SPACE

Space Systems

Our Activities

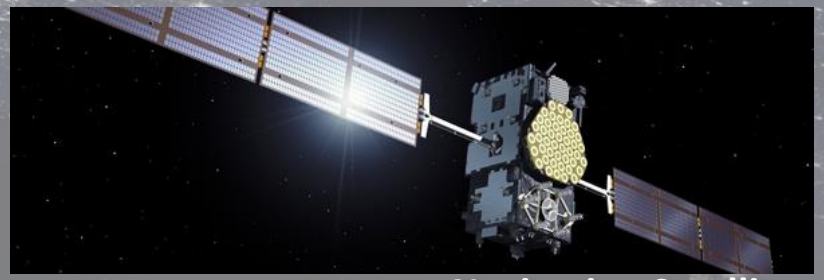
Telecommunication Satellites

Earth Observation Satellites

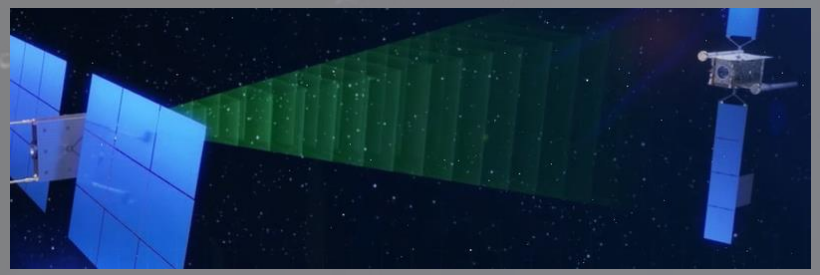
Space Equipments

Human Spaceflight

Space Exploration & Science



Navigation Satellites



On-Orbit Services

Ground Segments

Equipments for Launchers

… and a complete range of Space-based Services in our “Communications, Intelligence and Security (CIS)” business line.

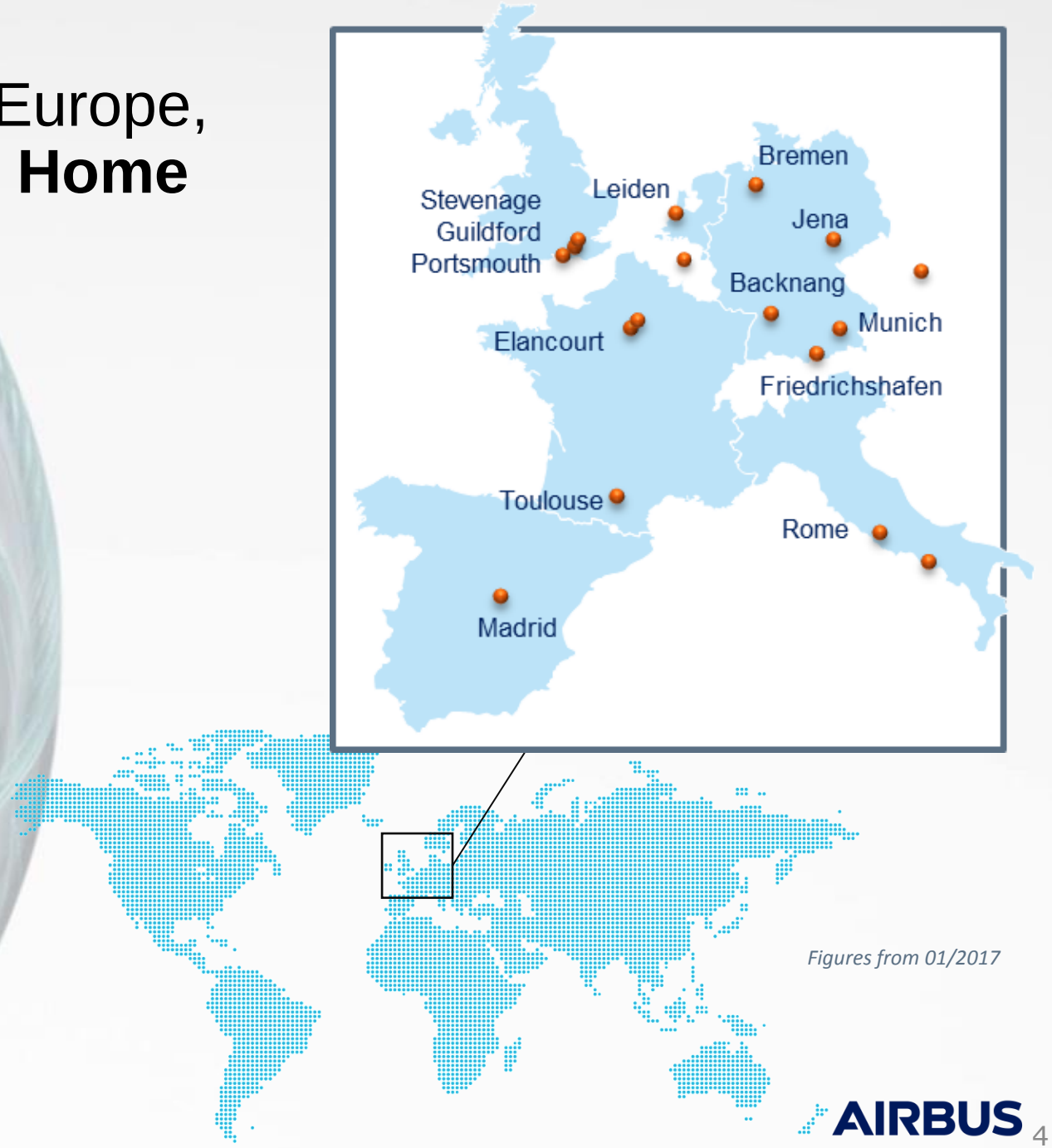
AIRBUS

Our Roots are in Europe, **the World is Our Home**

9,500 people,
with more than 50 different nationalities work

at 16 sites across seven countries

… and numerous joint ventures, subsidiaries
and sales offices around the Globe.



Figures from 01/2017

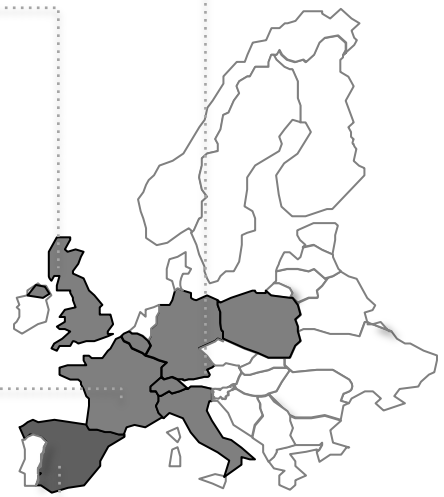
AIRBUS DEFENCE & SPACE

Space Systems

PRIME SITES CAPABILITIES

Design, manufacturing end-to-end space systems for Earth or Space Science and Exploration
Telecommunications Payloads/Equipments
Photonics
Propulsion engineering & manufacturing
Mechanical engineering & manufacturing

Design, manufacturing end-to-end space systems (board/ground) for:
-Telecommunications
-Optical Observation
-Science
-Exploration
Avionics
Optical and µWaves Instruments
Optical Communications
FOG Gyros and CMG
Electric Propulsion Sub System
Grounds Systems



Design, manufacturing end-to-end space systems (board/Ground) for:
-Radar Observation
-Science &Exploration
Avionics
Radar Instruments
ISS Payloads
Electronics Equipments

Design, manufacturing end-to-end space systems for LEO and Science satellites
Mechanical engineering & manufacturing
Active Antennas
Launchers Adaptators/Dispensers

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Space Systems

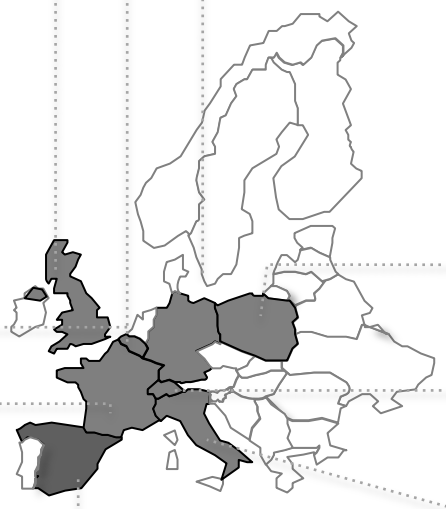
OTHER SITES AND SUBSIDIARIES CAPABILITIES IN EUROPE

Heat Pipes

Solar Arrays
Mechanical Products
EGSE

Optical Communications
RF Equipments
Optronic Equipments
Star Trackers & RV Sensors
Solar Arrays
GNSS Sensors
Electronics Equipments

Design, manufacturing of end-to-end small space systems for:
-Observation
-Telecommunications



Electronics Equipments
Ceramic Products

EGSE
OGSE
Application Services

Electronics Equipments

RF Equipments
Terminals
Subsystem AIT

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COMPANY PRESENTATION

12.09.17
Ref. = 0005-0008094067
Ref. Modèle =

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A GLOBAL OFFER

WE DESIGN, BUILD AND DELIVER END-TO-END SPACE SYSTEMS FOR

- EXPLORATION
- NAVIGATION
- SCIENCE
- OBSERVATION
- TELECOMMUNICATIONS

A GLOBAL OFFER FROM EQUIPMENT TO END-TO-END SPACE SYSTEMS

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KEY FIGURES

STRONG INDUSTRIAL PRESENCE IN EUROPE. COMMERCIAL REPRESENTATION IN MULTIPLE COUNTRIES

7,980 EMPLOYEES

15 SITES IN **8 COUNTRIES**

2.4 BN€ SALES IN 2016

A COMMITTED PARTNER TO DELIVER CUTTING-EDGE SOLUTIONS

A WORLD PLAYER IN EACH OF THE SPACE MARKETS

TELECOMMUNICATIONS

FIXED / MOBILE

BROADBAND

DUAL / MILITARY

SECURED

OBSERVATION

CLIMATE CHANGE

METEOROLOGY

OCEANOGRAPHY

INTELLIGENCE

SURVEILLANCE

NAVIGATION

LOCALIZATION

AERONAUTICAL

COMMUNICATIONS

DATA COLLECT

EXPLORATION / SCIENCE

PLANETOLOGY

FUNDAMENTAL PHYSICS

ASTRONOMY

HUMAN SPACEFLIGHTS

SPACE TRANSPORTATION SYSTEMS

A GLOBAL EUROPEAN INDUSTRIAL FOOTPRINT

15 SITES IN EUROPE

12.09.17

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TAS CAPABILITIES Footprint overview

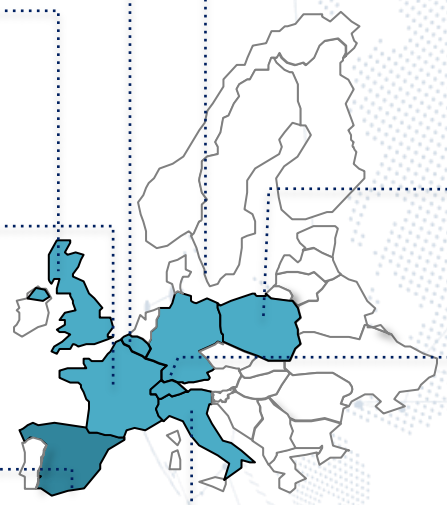
Power Subsystem engineering
Multi disciplinary Space Electronics
(Leuven eco-system)
PVA Factory

Advanced signal processing
SW-Team
System Engineering, IVVQ, AIV
HW Engineering

Propulsion engineering &
manufacturing
Instrument primeship
Prime capabilities/System
engineering and AIT (RAL)

Mechanical engineering
MMPF platform

Design, manufacturing end-to-end
space systems for:
-Telecommunications
-Observation
-Navigation
-Exploration



Opto-electronic
engineering/manufacturing
Radiation monitoring

System engineering (TT&C)
Optical instrument engineering (TIR-I)
P/L integration

Design, manufacturing end-to-end
space systems for:
-Telecommunications
-Observation
-Navigation
-Exploration

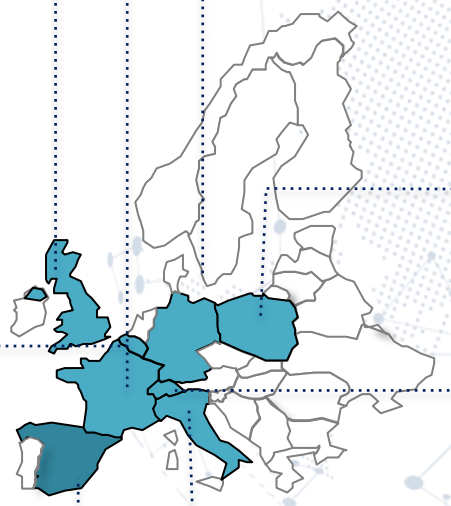
A Comprehensive set of skills, products and technologies across 8 countries, supported by European R&D and Product policy

TAS PRODUCTS Footprint overview

Electric propulsion
Gyros
Science payloads
Small platforms

Q band & Ka TWTA/EPC, SSPAs
PVA
PL Subsystem responsible

Ground segment
Galileo GMS IVVQ, MetopSG on-site AIV
Test Equipment



Digital processing 5G
RF/PCB conversion
Beam hopping Switch
Antenna mono & 400 spots
Space gate
Photonic multi Lo & frequency conversion assembly

Structures

Advanced processors
NMS Spacegate R5
Dynamic PL C&C (Hilink)
Photonic conversion chains

OISL
Photonic switchs

Reflector
DOCON V/IF band
Core avionics boards
Freq generation unit (photonic)

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ADS and TAS in the H2020 process

- Preparation of the calls
  - analysis of the needs for the space industry
  - identification of the main technology priorities
  - sharing with industry at national and European level
  - discussion with national agencies and ESA
    - roadmaps complementarity with EC
  - proposal of activities to national agencies and EC
- Role of Eurospace
  - Association of European Space Manufacturing Industry
    - Paris Office and Brussels Office, 90%-95% of space industry workforce
    - ESA-coordinated formal consultations for Technology Harmonisation process, Standardization (ECSS) and EEE components strategy (ESCC)
    - formalized consultations with industry
  - Preparation of an EC Joint Technology Initiative (JTI)
    - to be addressed in the frame of the next MFF

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H2020 industry perspective

- H2020 provides support for industry space RDT developments
    - co-funding improved (vs FP7) and grants attribution process judged fair
    - industry recommendations for the work program definition could be improved
- Leverage to industry competitiveness
    - Experience from last calls
        - competitiveness issues mainly through COMPET calls
            - only 35% of total budget of H2020-Space 2014-2017 period
            - did not only include topics strictly linked to industry competitiveness
                - e.g. outreach, very low TRL, science data exploitation and distribution
        - some important developments were started (ex: new processor DAHLIA)
        - some priorities were discarded for budget reasons (orphan lines)
    - Industry/private sector involvement
        - higher share expected in next phases for industry competitiveness
        - importance to set up consortiums that will develop real competitiveness
        - importance for SMEs involvement as participants, but also coordinators for some calls, with MOI support (requirement definition, validation, test, etc.)

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FP9 and the JTI opportunity

- A JTI was suggested by the European Parliament in May 2016 with the objective to improve support to the European space sector
  - a JTI is an executive management agency governed in PPP between industry and the EU, with a minimum co-financed budget of 500M€ 1B€ = 500M€ from Industry + 500M€ from EC (7 years)
  - the objective is to support European Industry in strategic areas where research and innovation are essential to European competitiveness on commercial and export markets
  - the EC MFF needs to integrate the JTI budget: initial elements needed by end of 2017
- A task force was set up by Eurospace and still on-going with European industry representatives to define the JTI perimeter of activities and the associated SRA
  - the SRA scope and governance aspects are to be finalized by mid-2018
  - the current consensus is to address the competitiveness of the industrial base: technology, building blocks for space and ground segment, and launcher.
  - all technology suppliers shall be associated to the SRA elaboration in an open, traceable and transparent process

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Conclusion

- The H2020 space RTD program answers a clear need to support the development of the European space industry
- Investment on advanced critical technologies is key for the competitiveness of the European space industry
- The opportunity for IOD/IOV is essential to foster the commercial use of space
- TAS and ADS, involved in all flagship areas and future technologies, plan to participate to the upcoming calls and are ready to bring their experience to collaborative partnership, in particular with SMEs, to set up winning proposals
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