

Space19

The "Space19" logo features the text "Space19" in a white, italicized sans-serif font. To its right is a 3D isometric cube with a white face in the center containing a dark blue circle with a white plus sign. The other faces of the cube are colored: top (grey), left (teal), right (blue), bottom-left (red), and bottom-right (yellow).

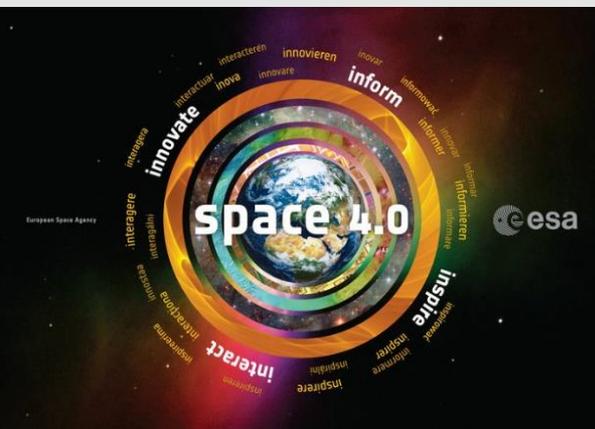
ARTES 4.0

Telecoms and Integrated Applications Directorate

ESA in Space 4.0



- Over 50 years of experience
- 22 Member States
- Over 80 satellites designed, tested and operated in flight
- Eight sites/facilities in Europe, about 2300 staff
- 5.75 billion Euro budget (2017)
- All areas of space activities covered



space science



human spaceflight



exploration



earth observation



space transportation



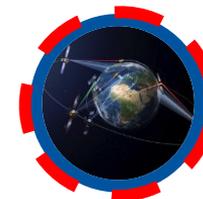
navigation



operations



technology



telecommunications



Telecoms and Integrated Applications ARTES 4.0

Digital Transformation is happening in many business sectors



Digital Transformation (DT) is the integration of information and communications technology (ICT) into all areas of a business, fundamentally changing how businesses operate and deliver value to customers



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European Space Agency

Connectivity is enabling Digital Transformation



- A⁴** - Access to data:
- Anytime**
 - Anywhere**
 - Anything (M2M/IoT)**
 - Any volume/speed**

- Connectivity**
- ✓ **Ubiquitous**
 - ✓ **Resilient**
 - ✓ **Secure**

Connectivity is an essential commodity



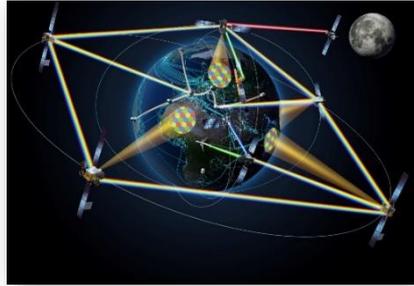
ARTES OPPORTUNITIES



4S Secure Satcom for Safety and Security



Optical Fibre in the Sky



5G for next Gen Comms



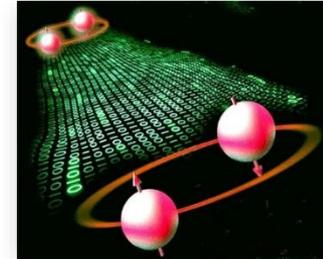
Digital Transformation



GovSatCom



NOVACOM
Next Gen Satcom
Systems



SAGA
Security and
Cryptographic
Mission

SUNRISE
Ph 2



IRIS
IOC & FOC



mm wavelength Communication	Digital Processing	Optical Communication	Smart Antenna	Smart Manufacturing



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Strategic Program Lines in ARTES 4.0



Covering highly visible societal/economic high impact objectives

✓ **Mercury - Satellite for 5G (S45G)**

The new generation of communications is key to support the Digital Transformation with integration of satellite with terrestrial telecom networks

✓ **Secure Systems for Safety and Security (4S)**

Innovative solutions to societal challenges and the security of European citizens; Aiming at coherence wrt EU GOVSATCOM as anchor customer

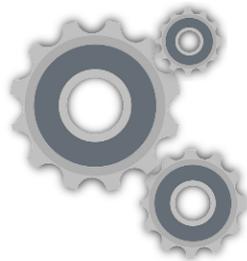
✓ **ScyLight - Optical Communication**

Cutting edge technology at the frontiers of knowledge and with technological challenges yet to be mastered. Foster Industry capabilities to answer to the upcoming markets and to provide solutions to European strategic needs.





ARTES Implementing Tools



**Public Private
Partnership**

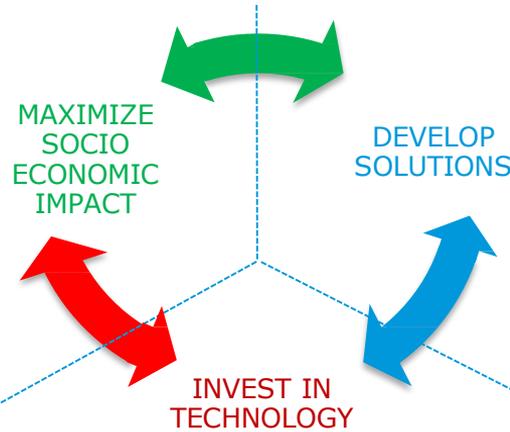


ARTES Growth - Vision of Satcom Future



Focus on Growing Services

- ✓ 5G and fully integrated services
- ✓ Safety and Security,
- ✓ Connectivity and Autonomous Transports,
- ✓ IoT, Broadband, Smart backhauling,
- ✓ Digital Radio,
- ✓ Integrated Media Delivery,
- ✓ Governmental
- ✓ Integrated applications (NAV, EO, TEL),



Develop Disruptive Solutions

- ✓ Flexible, scalable
- ✓ Multi-network (terrestrial, XEOs, HAPS, RPAS, NAV, EO),
- ✓ Frequency agnostic including optic,
- ✓ Safe and cyber-secured,
- ✓ Multi-use (civil, governmental, commercial)
- ✓ Shift from partitioned ground and space into full integrated system,
- ✓ Drastic reduction of cost of ownership of Satcom solutions

Enable Technology Pillars

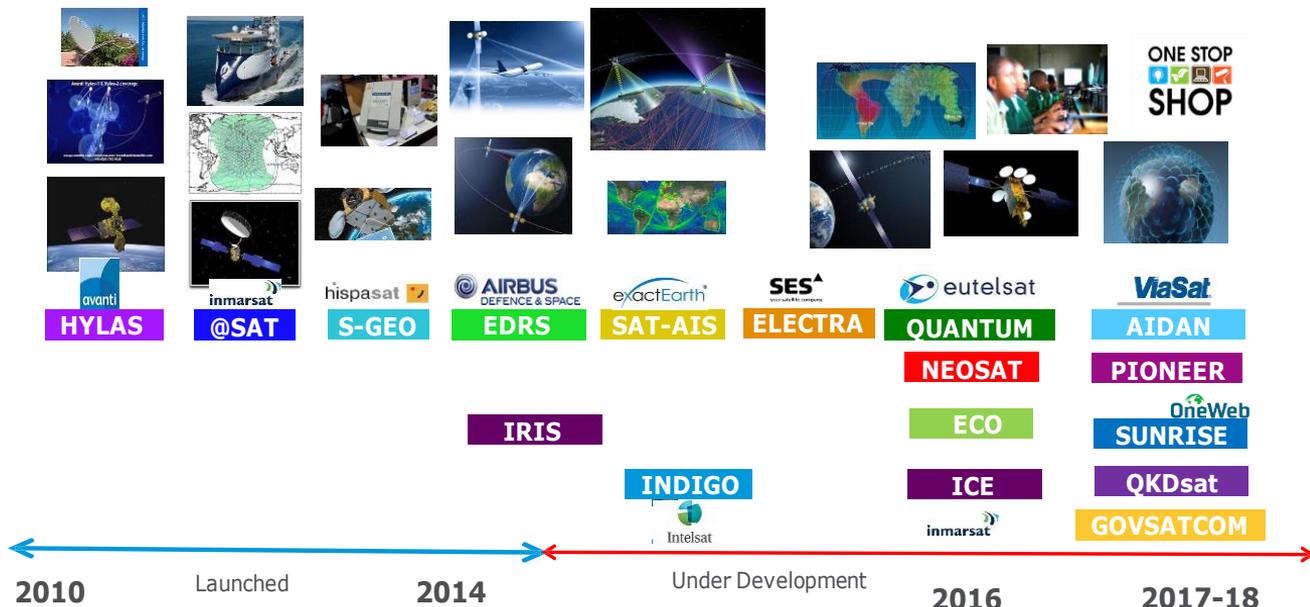
mm wavelength Communication	Digital Processing	Optical Communication	Smart Antenna	Smart Manufacturing



ARTES Public Private Partnerships



- Always open opportunity for partnerships with Industry
- Also an attractive vehicle for national Flag-ship programs
- New programs under preparation for Space19+



THANK YOU

christopher.topping@esa.int

M: +31 (0)611533280

T: +31 71 565 4949