TELECOMMUNICATIONS AND INTEGRATED APPLICATIONS

BOOSTING COMPETITIVENESS OF INDUSTRY
Satellite communications (satcom) underpins everyday life, enabling fundamental improvements not just in communication but also in transport and logistics, healthcare, safety and security, environmental services and many other sectors. ESA's programme of Advanced Research in Telecommunications Systems (ARTES) has been in place for 25 years and has made major contributions to the success of European and Canadian industry in the global market for satcom.

This unique programme aims at supporting the competitiveness of industry in ESA’s Member States on the world market. Through ARTES, ESA and its Member States invest more than €400 million every year in the space industry's development of new products, space systems and services, supporting the introduction of innovative technologies and space solutions that might otherwise be too risky to reach the market.

LOOKING AHEAD TO 2030
Ubiquitous, global communication services available to anyone, anywhere, any time.
ARTES 4.0 supports improved world competitiveness of industry and space based solutions in response to societal and economic policy needs. It is flexible, improves efficiency for all stakeholders and hence adapts to the new market pace and its digital transformation.

**STRATEGIC PROGRAMME LINES**

**5G**
Integration of satellite into next generation 5G communications networks

**4S**
Space Systems for Safety and Security

Optical communications
ScyLight

**SUNRISE**
Phase 2

**NOVACOM**
Next Gen Satcom Systems

**HydRON**
Fibre in the Sky

**SAGA**
Security and cryptographic mission

**IRIS Satcom Global Solution**
Initial and full operational capability

Additional Flagship Projects will be initiated during the 2021-2023 period.
TODAY’S CHALLENGE

The satcom industry is going through a profound transformation, in line with the wider digital transformation of society as a whole. Traditional revenues from satellite broadcasting are being eroded, foreign competition is mounting, NewSpace and Industry 4.0 are revolutionising manufacturing and the supply chain, and satellite services are becoming part of much larger integrated telecom networks.

To ensure the European space industry continues to thrive, ESA must play a vital role in stimulating innovation, sharing risk, federating demand, improving standards, coordinating industry-wide initiatives and helping European industry to stay at the leading edge of a fiercely competitive global market.

ARTES 4.0 STRATEGIC PROGRAMME LINES

The proposal to Space 19+ introduces three strategic programme lines, which will gather activities and projects aiming at a common strategic goal:

- **Space for 5G**: an opportunity and demand from the market. The new generation of communications is key to support digital transformation and the integration of satellite with terrestrial telecom networks.
- **Space Systems for Safety & Security-4S**: innovative solutions to societal challenges and the security of European citizens.
- **Optical Communication-ScyLight**: the next technology frontier for the space-based communications of the future.

ARTES 4.0 GENERIC PROGRAMME LINES

Beside the strategic lines, there are four generic programme lines to support the competitiveness of industry in the most efficient manner:

- **Future Preparation**: perform mission and configuration studies to prepare and continuously update the medium and long-term telecommunication programme; define the technology developments necessary for the implementation of new projects and relevant timing.
- **Core Competitiveness**: stimulating innovation; support the development of new or next-generation satcom products and technologies.
- **Partnership Projects**: provide the satcom industry with the right environment to bring innovative space-based solutions into the commercial market. They federate European industry around large-scale programmes creating new value-added solutions that would otherwise not be offered. Over the years, ESA has become a trusted partner for manufacturers, operators and investors.
- **Business Application and Space Solutions**: developing new space-enabled products, applications and services stimulates the wider economy, creating new business and jobs across almost every sector. Business applications and space solutions benefit society on a daily basis, e.g. by monitoring the environment; increasing the efficiency of the energy and transport sectors; improving education and healthcare in remote areas; and assisting in civil protection.

SOCIOECONOMIC IMPACT

- **Social**: Enabling anyone, anywhere to be connected, creates a more equal, secure and innovative society.
- **Economic**: Satcom enables the full realisation of 5G that is fundamental to the future global economy.
- **Geopolitical**: Satcom provides secure, reliable communications anywhere on Earth, even when all else fails.

More information at [www.esa.int/space19plus](http://www.esa.int/space19plus)