Role of COTS in the COM Strategic Research and Innovation Agenda for Space

ACCEDE Workshop on COTS Components for Space Applications

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DG GROW-REA

Space Policy and Research

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EU Space Strategy

In 2016, the European Commission published a Space Strategy for Europe with the objectives:

- maximizing the benefit of space for society and EU economy
- Fostering a competitive and innovative European sector
- Reinforcing Europe's autonomy in accessing and using space
- Strengthening Europe's role as a global actor

The Space Programme proposal for 2021-2027 includes four components:

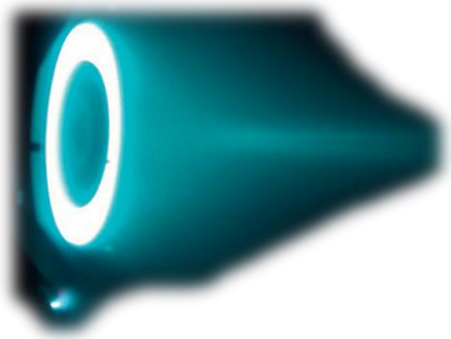
- Galileo/EGNOS
- Copernicus
- Space Situational Awareness (SSA)
- Secure Governmental Satellite Communication (GOVSATCOM)

Space R&D activities within the Horizon Europe proposal will support:

- R&I needs of the Space Programme
- competitiveness of the EU Space sector primarily through space technology development.

A changing Space…

- Since the beginning of the 90s private customers emerged progressively
  - 33% of the mass launched in 2017 was for private customers
  - Growth of the number of launches of micro and nanosatellites
    - Over the last 7 years: 43% of spacecrafts launched are below 10kg



- Strong trend in the use of large constellations, many declared projects:
  - OneWeb, Google/SpaceX, Samsung, LEOSat, TeleSat, Commsat
  - Iridium Next, Norstar, LEOsat, Galileo, TerraBella, Jilin
  - PlanetiQ, UrtheCast, Laserlight…

New Space Practices

- New Space practices, particularly evident in constellations, based on
  - Target **very low cost**
  - **Modularity, no modification** allowed – use as is
  - **Go fast**, fail quick, restart
  - **Large series production methods**, robotic assembly, supply economies
  - **Share common resources** - RF spectrum, access to space…
  - Acceptance of **higher risks**
  - Systematic **use of COTS**

Using COTS in Space is not just a pick and place exercise, a structured approach is necessary

Critical elements

- Limited traceability
- Limited access to qualification and supply chain data
  - Unless parts qualified based on Automotive standards e.g. AECQ100
- Unknown radiation performance
  - Testing and screening is mandatory
- Product turnover, process changes, obsolescence
- Lead-free terminations
  - Sensible aspect considering that the REACH regulatory pressure may result on difficult market availability of leaded solder paste and coatings

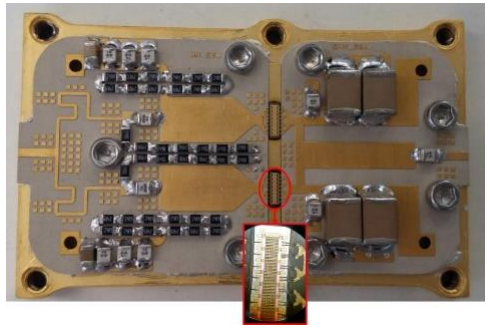
➡ In return, **very low cost if compared to a space qualified part**

Strategic Research and Innovation Agenda

- Guidance and recommendations for Space Research in Horizon Europe
- Consultation of a broad base of stakeholders

VISION

- **Foster competitiveness of space systems**
  - Future space ecosystems: on-orbit operations, new system concepts
  - New industrial processes and production tools
  - Enabling technologies
  - …
- **Reinforce access to space**
  - Disruptive concepts for access to space
  - Fostering and enabling new commercial space transportation solutions
  - …
- **Promote synergies**
  - Technology non-dependence
  - Dual use and synergies with defence
  - Technology transfer
  - Standardisation and certification approaches



COTS

- Competiveness, Access to Space and Synergies chapter
- Support to COTS activities as an area of intervention

How COTS are seen by the SRIA?

Technology Transfer, Manufacturing, Assembly and Testing at larger-scale

Need to enhance the coordination and create synergies by sharing technologies between space and non-space sectors

- Best use of COTS components as a response of **spin-in activities** from non-space
- Prospecting, promoting, demonstrating and qualifying technologies developed for other markets

HOW?

- Prospective of funding for projects aiming at bringing COTS components into Space applications
- Support to specific actions aiming at:
  - Evaluating compatibility of aeronautics, automotive, commercial parts with Space requirements
  - Building a shared European industrial knowledge

Time line for COTS in Space Research and Conclusions

- In 2020 the preparation of the Horizon Europe Space Work Programme based on the SRIA will take place
- Place holders were introduced in the SRIA covering many aspects of the Space Research including also the use of COTS
- What shall we do first, what will be the priorities?
- This conference and other discussions that will take place in the next months will be considered for deciding the priorities

Thank you!