

# COTS Avionics

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European Space Agency

# Avionics for New Space

COTS Avionics -> Avionics for New Space ?

What is New Space ?

- Mainly LEO
- Constellations
- Reliability defined at System level rather than Satellite level
- Cost driven
- Availability and Lead time
- Using specifically selected Mass Production Automotive EEE Components

Other mission scenarios to be considered ?

# Avionics for New Space



Avionics = Sensors + OBC/RTU (HW + Firmware + SW + Application) + Actuators

COTS:

- Sensors (GNSS receivers ?, Gyros ?, COTS based units)
- Actuators (?)
- OBC, RTU (yes ?, COTS based ?)

Concepts evolution:

- FDIR (robust to temporary outages based on a priori characterisation)
- Reconfigurable HW (FPGAs)
- Software Defined Radio (SD Functions)
- Centralized Architectures
- Auto-coding
- In-flight calibration (vs on-ground calibration)
- Augmented autonomy

# Questions



A.1 For which functions would COTS approach be most appropriate ?

A.2 COTS modules/units or modules/units based on COTS components ?

B Opportunities: enabling in itself, cost reduction, open to new players others ?

C Threats: weakening Hi-Rel components/unit suppliers, is it really as open/easy as it sounds, others ?

D.1 Role of industrial stakeholders: Primes, Equipment Suppliers, Parts Suppliers ?

D.2 What should be undertaken by ESA in this context ?