

# From ATV to MPCV EEE-parts management by CPPA

ESCCON, 1 – 3 March 2016

ESTEC, Noordwijk

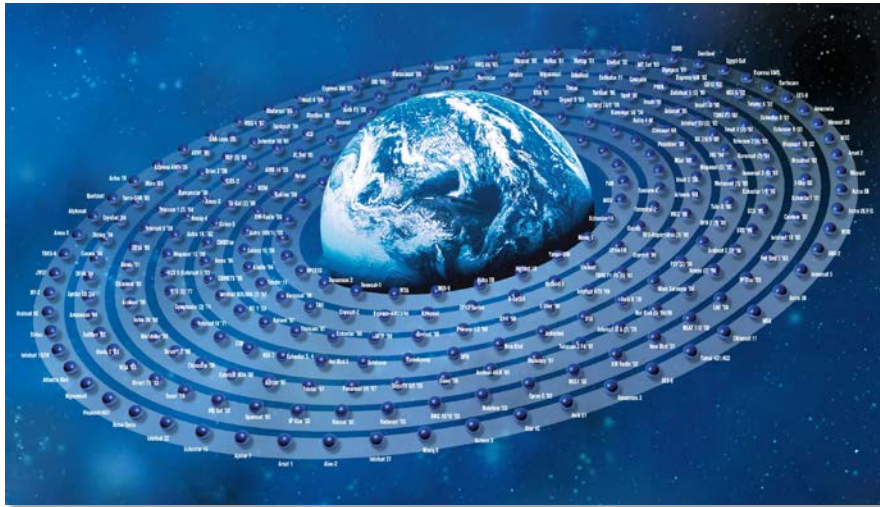


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# Tesat-Spacecom



Location	Backnang, Germany
Core Business	Satellite Payload Equipment & Subsystems
Employees	1 250
Turnover 2014	337,6 Mio Euro
Equip. Capacity	up to 1 500/year
Website	<a href="http://www.tesat.de">www.tesat.de</a>

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# Agenda

- ATV: The main figures
- ATV: CPPA point of view
- CPPA: Benefits for prime and users
- MPCV-SM: Evolution from ATV to Orion
- MPCV-SM: Differences to ATV and impact on EEE-parts
- MPCV-SM: Experiences from CPPA



## ATV (Automated Transfer Vehicle): The main figures

- ESA's largest and most complex project to date
- 5 unmanned space cargo ships to the ISS + reboosts of ISS
- Launched with Ariane-5-ES-ATV
- 23 different user involved in CPP for EEE-parts
- 46 different equipments per vehicle
- > 20 years program duration



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## ATV: CPPA point of view

- TESAT (prime) in cooperation with ALTER (subco)
- Engineering support started in 1998
- > **7500** EEE-part types per vehicle
- ≈ **300k** pieces of EEE-parts per vehicle
- > **2Mio** pieces in total
- Close-out in Dec 2015

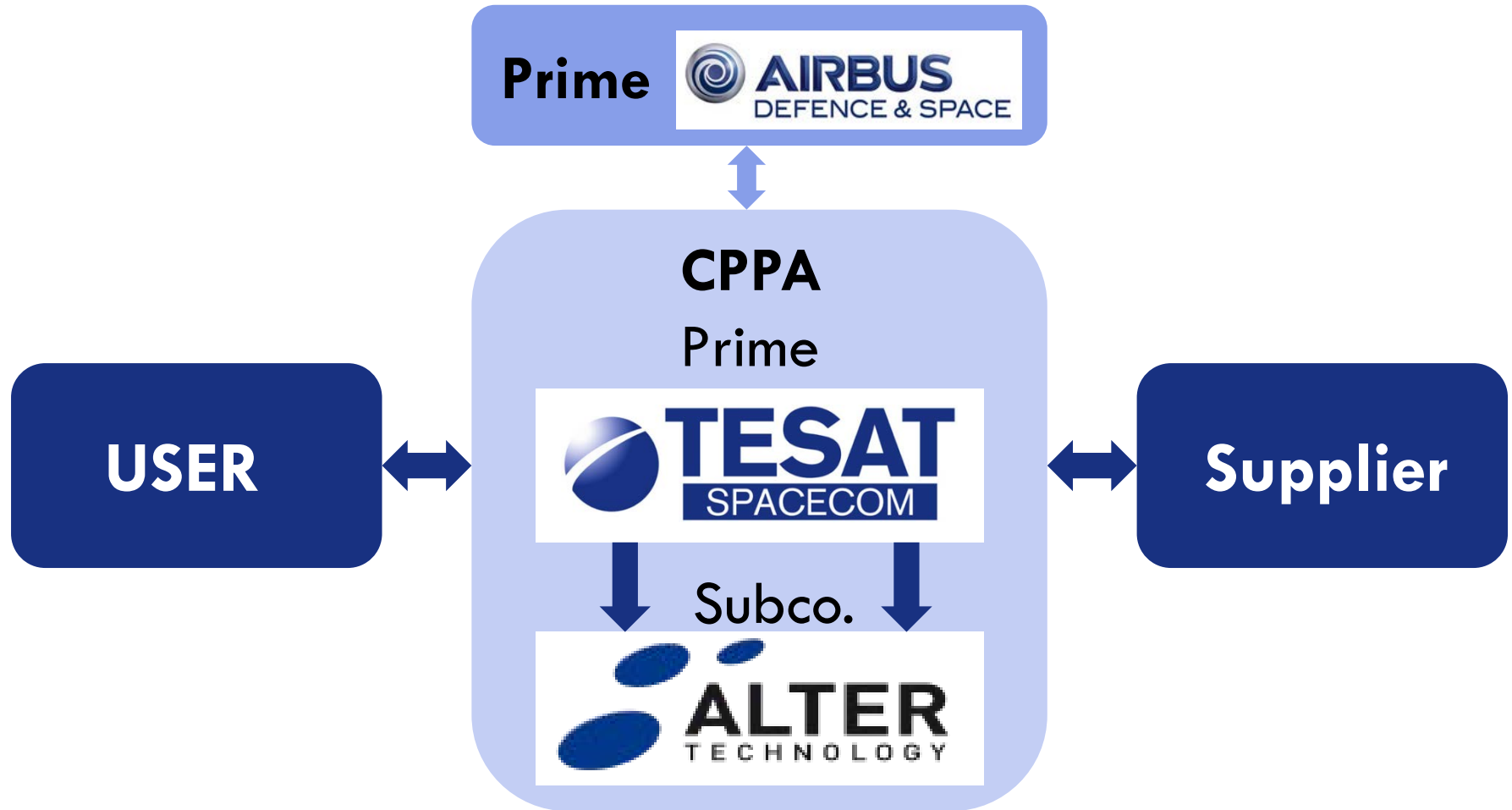
 **Successful handling by CPPA**



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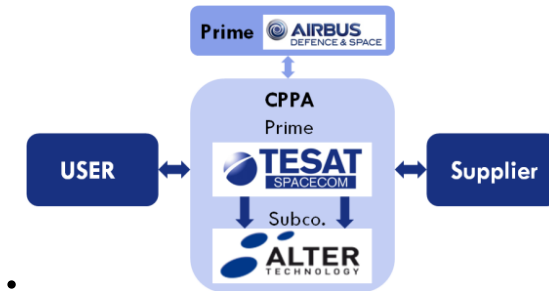
# CPPA Set-up



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## CPPA: Benefits for prime and users (1)



- Part type reduction and standardization
  - Reduced overall cost and reduced logistics
  - Homogeneity of quality in acc. with project requirements
- Procurement control and visibility
  - Single interface to manufacturer
  - One point contact for Prime
- Purchasing power
  - Stronger position with vendors, better prices & lead times
  - Reduction of MOQ & additional testing
  - Better response time from manufacturer

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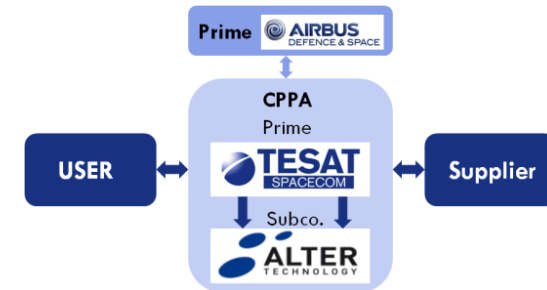
## CPPA: Benefits for prime and users (2)

### ● Technical Support

- Know-how on all part types
- Experience with all manufacturers
- Issuing of specifications
- Handling of Warning Notices and Alerts

### ● Additional service

- Performing tests and inspections (CSI, DPA, RVT, etc.)
- Export license management
- Obsolescence management
- Access to stock



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## MPCV-SM: Evolution from ATV to Orion

- Orion Multi-Purpose Crew Vehicle (MPCV) by NASA
- Service Module (SM or ESM) as European contribution
- In-space propulsion, energy, thermal control, life support systems
- Based on ATV-technologies + new designs/concepts
- EEE-parts: TESAT (CPPA-prime) with ALTER (Subco)
- Engineering support started in 2014



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## MPCV-SM: Differences to ATV and impact on EEE-parts

- Manned missions foreseen
  - ➔ **level class 1** (instead of class 2)
- Missions beyond LEO
  - ➔ **rad-hard devices** (instead of low TID/SEE req.)
- Time-lag between missions
  - ➔ **combined procurement for several vehicles in ATV**
- Less numbers of users and equipments
  - ➔ **still consolidation options in MPCV**

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## MPCV-SM: Experiences from CPPA (1)

- Standardization/Consolidation of EEE-parts
  - ➔ **approx. 25 %** of line items across diff. DCLs
- Cost impact by requirements (class 1, rad-hardness, etc.)
  - ➔ **significant higher cost** for EEE-parts per DCL
- First cost estimation for MPCV were based on ATV
  - ➔ considering new req. for level, rad-hardness, etc.
  - ➔ within **±10%** of cost for first DCL for MPCV

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## MPCV-SM: Experiences from CPPA (2)

- High quality of EEE-parts
  - ➔ very **low number of NCRs** (compared to ATV)
  - ➔ significant lower post-procurement costs
- Combined procurement for multiple vehicles limited
  - ➔ **Further savings** could be realized in future

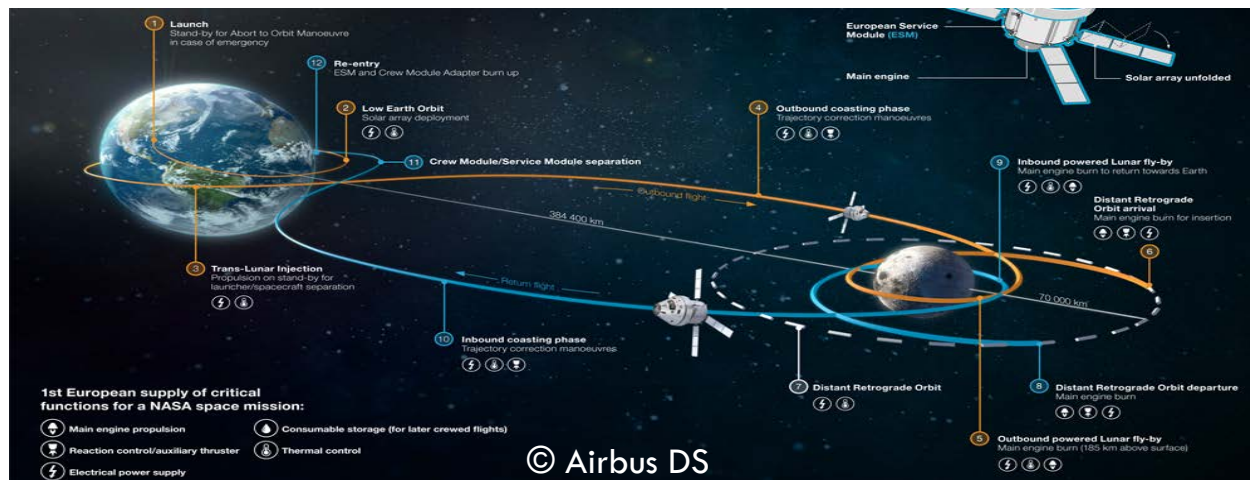


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# Summary

- EEE-parts impact by mission req. well estimated at early stage
- EEE-parts CPPA concept was/is applied successfully in ATV/MPCV
- Good base for further benefits to future MPCV-SM
- Currently planned: MPCV mission in 2018 and in 2022



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**Thank you, Merci, Grazie, Vielen Dank !**

**For further information please contact:**

**Dr. Frederik Küchen**  
**Head of Parts Agency**



**Tesat-Spacecom GmbH Co. KG**

Gerberstraße 49

71522 Backnang

[frederik.kuechen@tesat.de](mailto:frederik.kuechen@tesat.de)

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