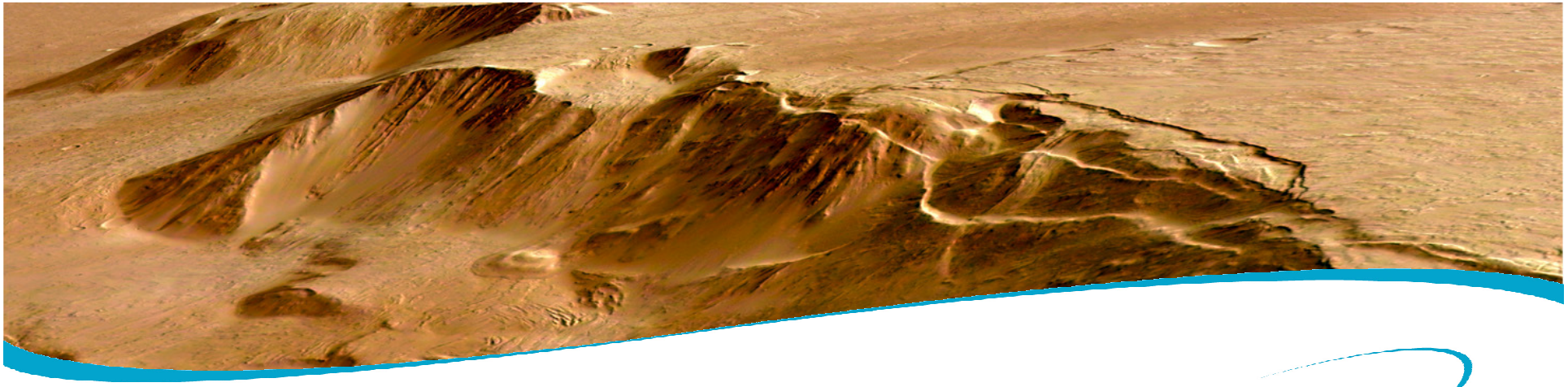


ThalesAlenia Space
A Thales / Finmeccanica Company

EXOMARS Industry Day Procurement

Thales Alenia Space- Italia (Turin)

THALES

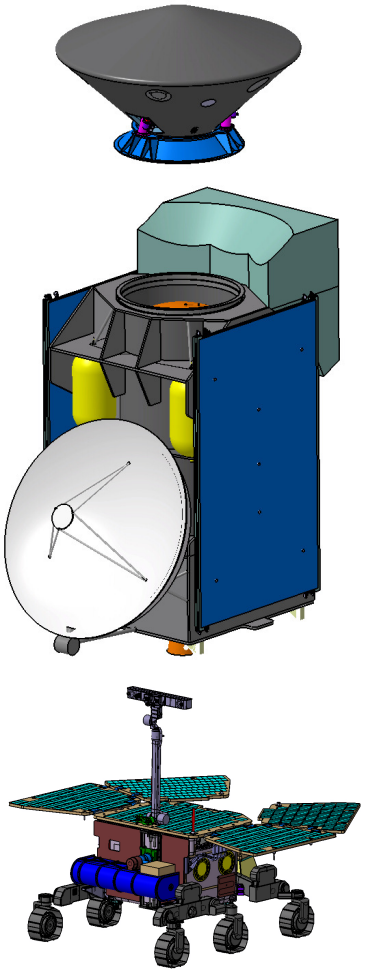
Procurement Approach

- The Subcontractors' Selection Process will be performed in accordance with the Project's requirements that are based on the

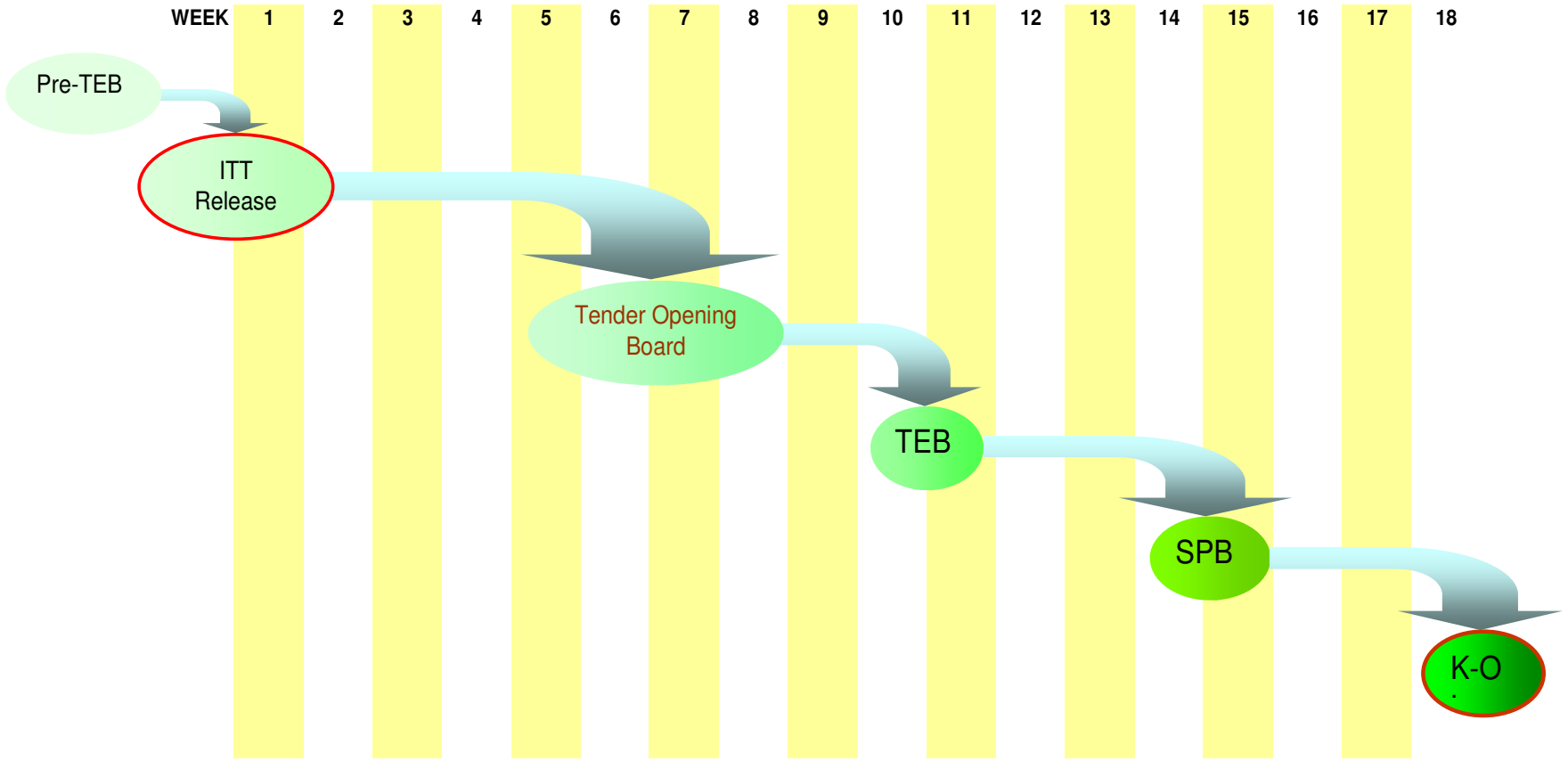
ESA Code Of Best Practices.

- The **Issuing Companies** will release ITTs for procuring the **Complementary Activities** under their responsibility.

- The **Industrial Organization** will be completed as part of the Advanced CD Slice 2 and CD Phases.



Subcontractors' Selection Process.



Procurement Approach

The principal procurement method is

Open Competition

that will be initiated by issuing Invitation To Tenders (ITTs) through the

emits

Invitations to Tender / Hosted by ESA

ITT Pack Composition

The ITT package available on EMITS is composed by

- **Cover Letter**
- **Statement Of Work**
- **Draft Contract**
- **Special Condition Of Tender**

Dedicated links will be provided for the **Requirement Specification** and for the **Normative References**.

Initial Committments

Target Prices will be defined for each ITTs.

The following Price Types will be defined:

- **Phase B2**: Firm Fixed Price (FFP)
- **Advanced C/D phase**: Firm Fixed Price (FFP)
- **Phase C/D**: Ceiling Price to be converted into Firm Fixed Price.

The initial commitment taken by the Customer will be limited to the Phase B2 and Adv C/D activities to be performed up to the end of March 2011.

Nominally, an immediate transition to the full Mission level C/D phase will begin on 1 April 2011, subject to Agency decision.

The Contract framework based on General Clauses and Conditions for ESA Contracts - Rev. 6 their GT&C.

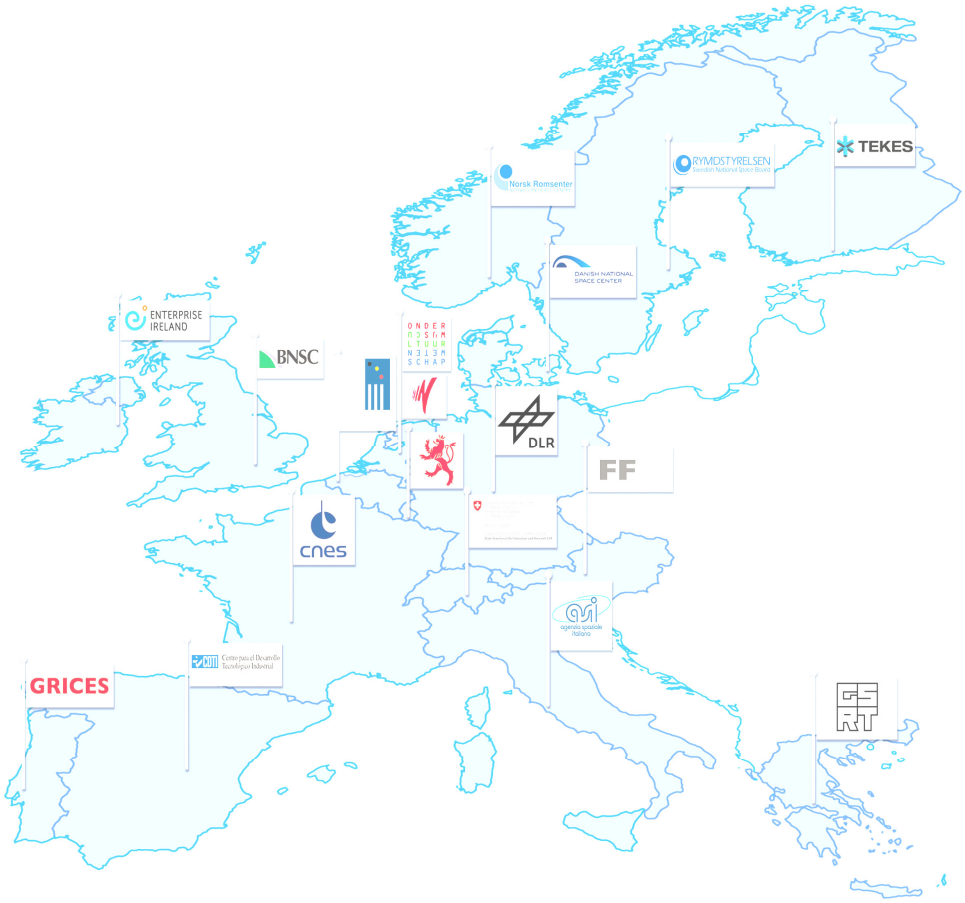
Export Control & Licenses

The Contractor shall **maximize procurement of EU parts and product.**

Any non – European component/item needed shall be identified in the proposal. In such case the Tenderer must **provide evidence that all export control requirements are fulfilled and authorizations obtained.**

This is particularly valid for US procurement and related US re-export regulations (EAR and ITAR).

ExoMars Participating Countries

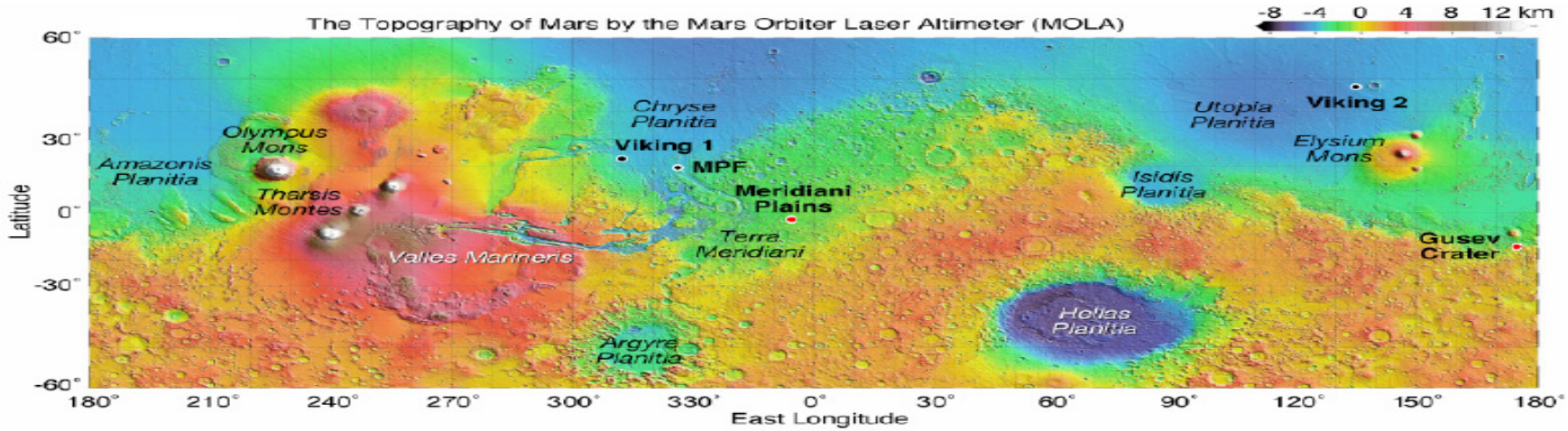


Participating States	Geographical Distribution Requirements (%)
Austria	1,47
Belgium	3,07
Canada	2,25
Denmark	0,65
France	15,17
Germany	10,54
Italy	32,70
The Netherlands	1,46
Norway	0,31
Portugal	0,25
Spain	6,86
Sweden	0,73
Switzerland	5,15
United Kingdom	19,39

Opportunities

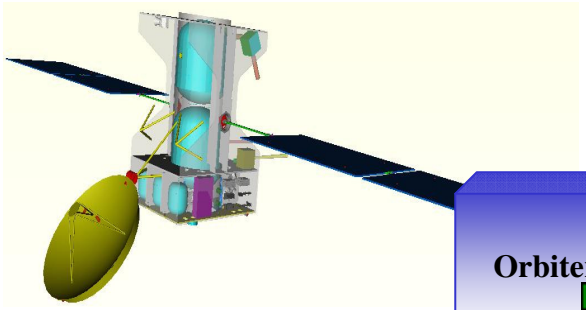
The procurement activities started on 2008. Several ITTs haven already released and some selections have been already made.

About SEVENTY (70) ITTs are planned to be released for completing the ExoMars Industial consortium



THALES

The Issuing Companies



ExoMars Programme

esa

Orbiter Module

Thales Alenia Space I

EDL Demo Module

Thales Alenia Space I

Rover Module

Thales Alenia Space I

Orbiter Module Bus

Thales Alenia Space F

Entry Descend System

Thales Alenia Space F

Surface Platform Structure & SM

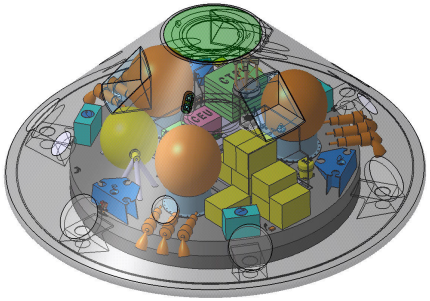
SENER

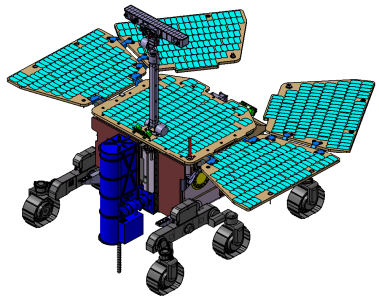
Rover Vehicle

Astrium Ltd

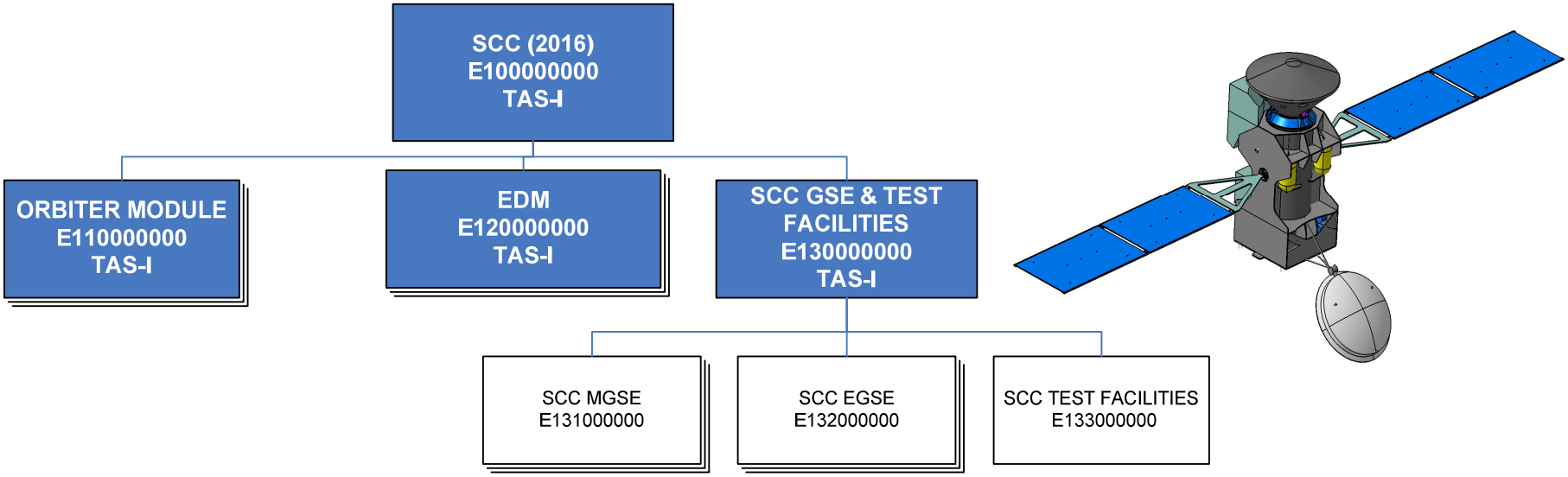
Orbiter MTP

OHB System





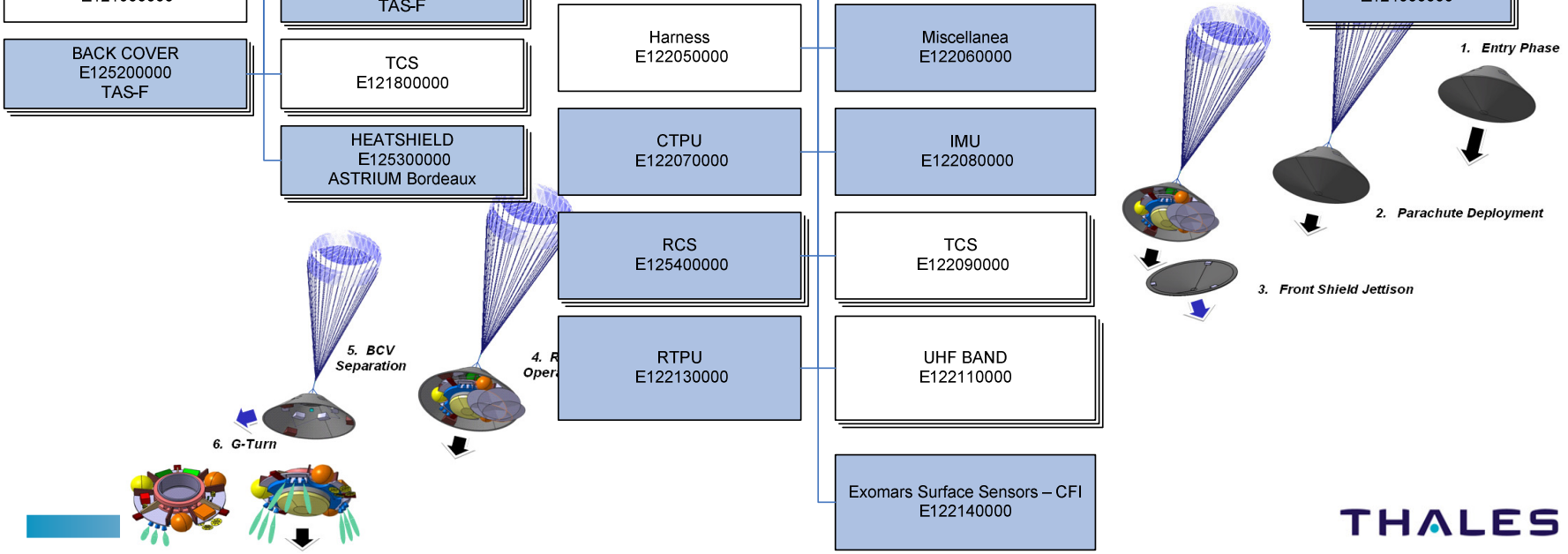
S/C Composite & Orbiter Module



Equipment	Procuring Company	ITT out	Brief Description
Orbiter Module & 2016 Spacecraft Composite			
Launch Campaign EGSE	TAS-I	2012	Set of EGSE items for perfoming the 2016 Launch Campaign
OM OBSW ISVV (OM)	TAS-I	2012	Critical On Board Softwares Products validation by a third party under Prime control
Composite MGSE	TAS-I	2013	Set of MGSE items for perfoming Environmental Campaign of the 2016 Composite Spacecraft
SCC PFM Test Facility	TAS-I	2013	

EDL Demonstrator Module

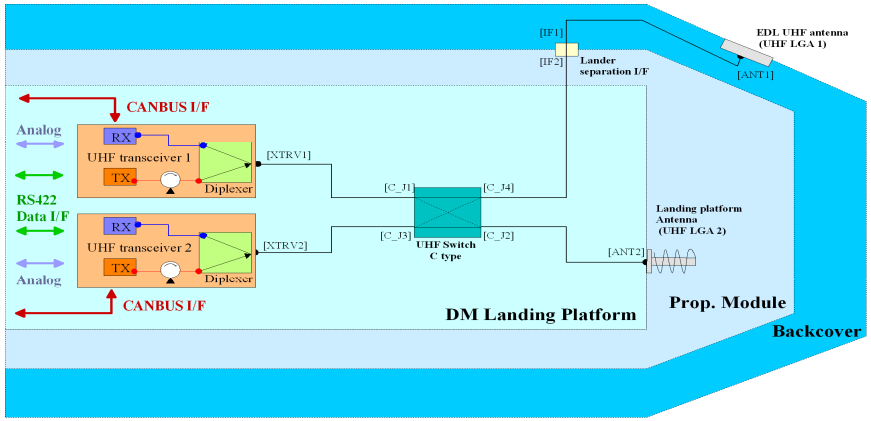
- EDM E120000000 TAS-I
  - EDM AEROSHELL E121000000
    - Front shield separation mechanism E121100000
    - HARNESS BSH E121300000
    - UHF ANTENNA E121500000
    - BACK COVER E125200000 TAS-F
    - SUN SENSORS E121200000
    - MISCELLANEA E121400000
    - PARACHUTE System E125100000 TAS-F
    - TCS E121800000
    - HEATSHIELD E125300000 ASTRIUM Bordeaux
  - EDM SURFACE PLATFORM E122000000
    - RADAR Doppler E122010000
    - BATTERY#01 E122030000
    - Harness E122050000
    - CTPU E122070000
    - RCS E125400000
    - RTPU E122130000
    - SURFACE PLATFORM STRUCTURES & SEPARATION MECHANISMS E122020000 SENER
    - BATTERY#02 E122040000
    - Miscellanea E122060000
    - IMU E122080000
    - TCS E122090000
    - UHF BAND E122110000
    - Exomars Surface Sensors – CFI E122140000
  - EDM OBSW E123000000
  - EDM GSE & TEST FACILITIES E124000000
    - MGSE E124100000
    - EGSE E124200000
    - FGSE E124300000



EDL Demonstrator Module

UHF Band Communication

- One patch Antenna
- One Helix Antenna
- RF cables and switches

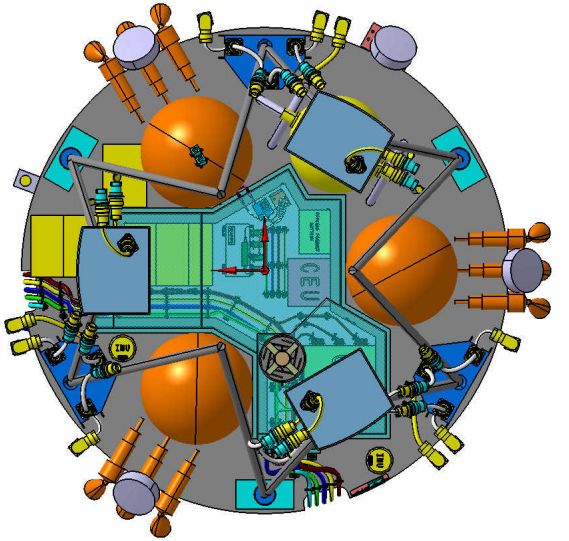


POWER GENERATION

- Batteries

HARNESS

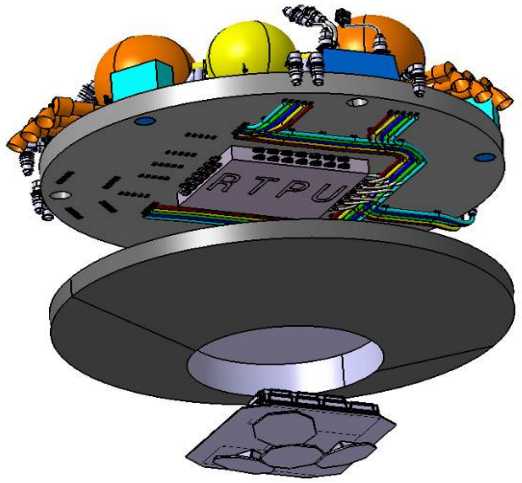
- power, analogue and digital signal distribution for ATB and Flight Model

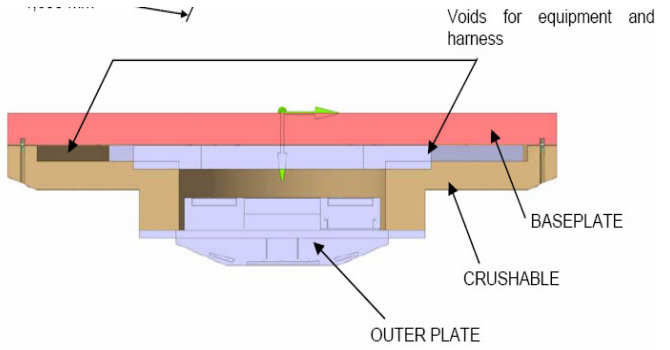


Chrushable Structure

The crushable structure is designed to absorb the complete kinetic energy, without relying on permanent damage of the primary structure, which integrity needs to be preserved.

The crushable structure is composed of thick sandwich panels made of Al skins and Al honeycomb having different light density according to the areas to be protected.

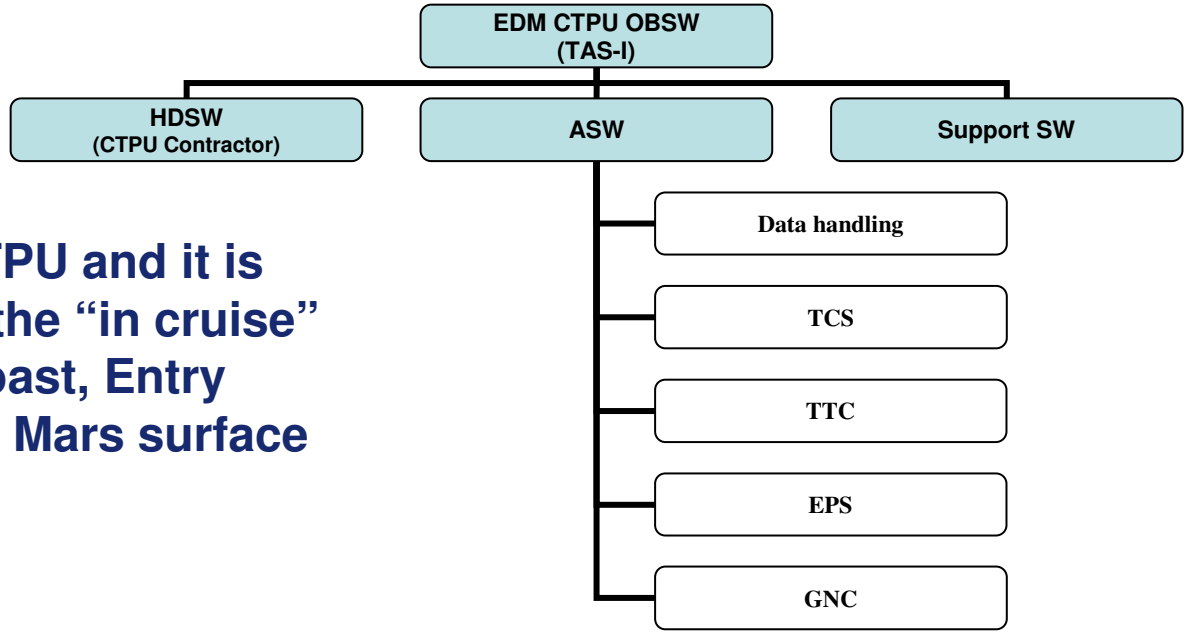




Thermal Blankets

- MLI on the Frontshield external and internal side
- SLI on the Backshield TPS

EDM On Board SW



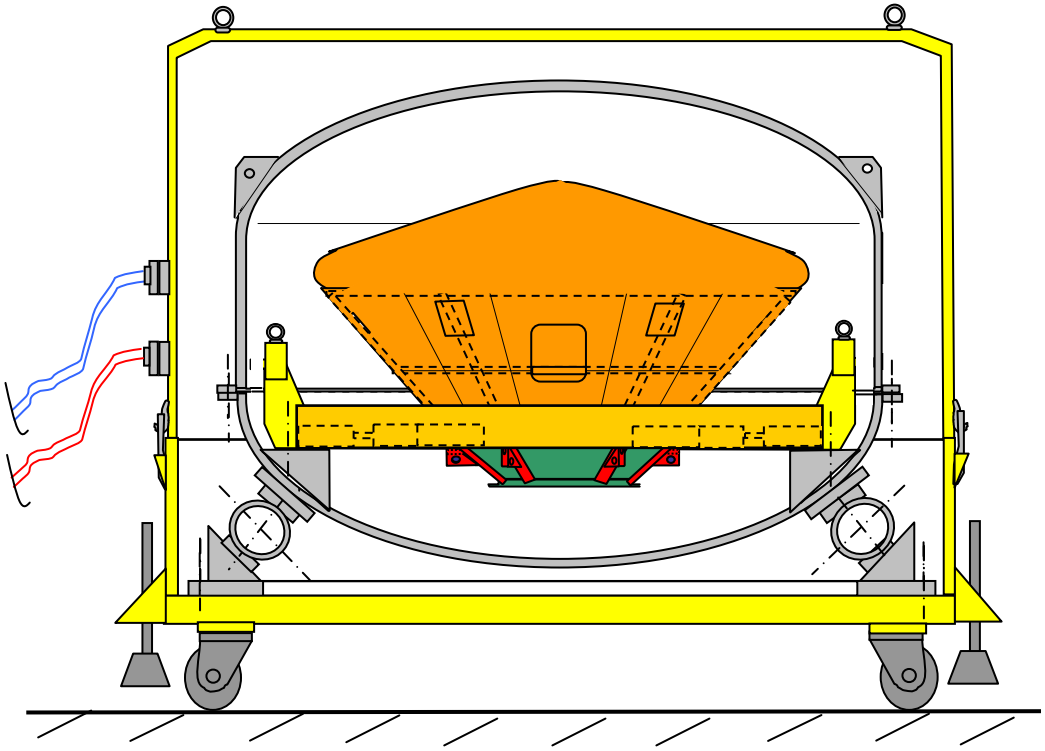
It runs on the EDM CTPU and it is dedicated to support the "in cruise" EDM checkout, the Coast, Entry Descent Landing, and Mars surface operations.

A Contractor will be selected for supporting TAS-I for developing specific ASW Components. The main tasks will be:

- **Co-operate since the Detailed Design Definition phase.**
- **Perform coding and unit testing.**
- **Participate at the integration & testing activities on the test benches (SVF, STB) at TAS-I premises.**

MGSE for EDM

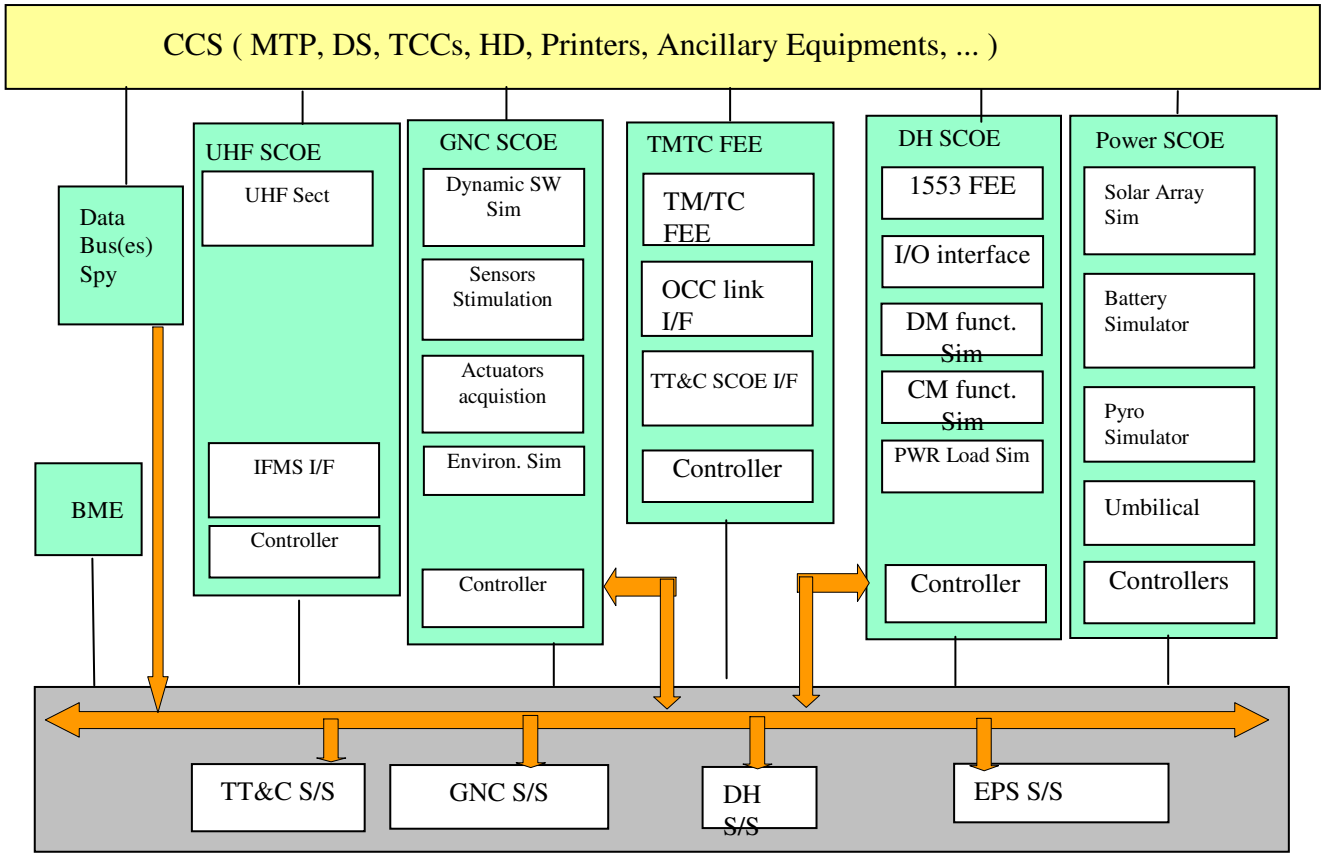
- Transport and Storage Containers
- Integration and Test Stands or Trolleys
- Lifting and Handling Devices



They shall be designed and build to be compatible with the Planetary Protection constraints.

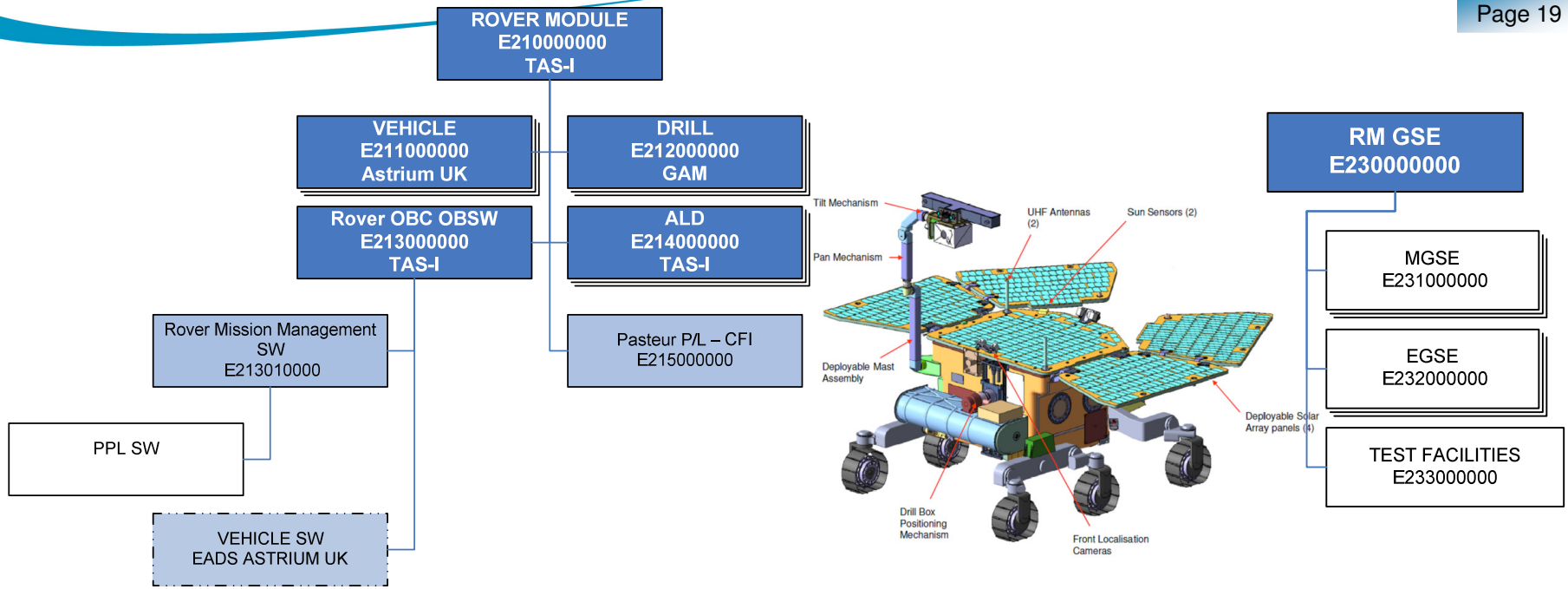
EGSE still to be procured for the EDM

- Power SCOE
- GNC SCOE
- DH SCOE
- TM/TC FEE



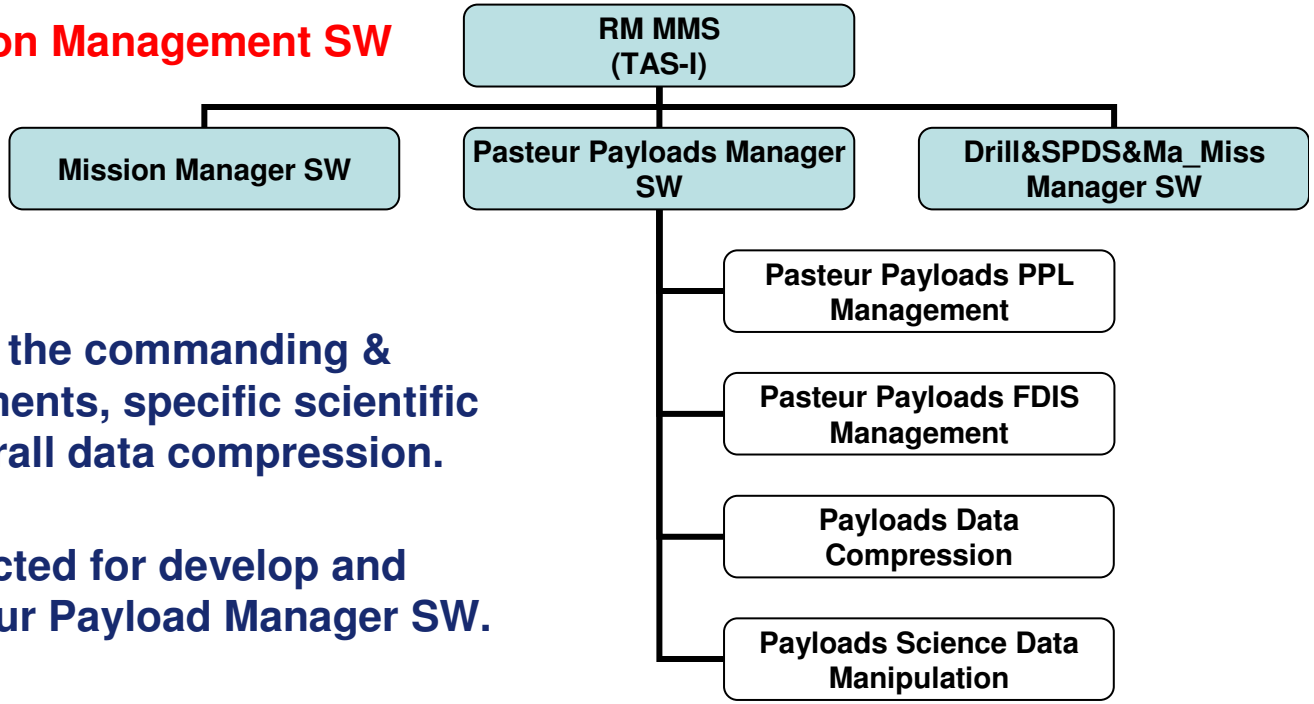
Equipment	Procuring Company	ITT out	Brief Description
EDL Demontsrtor Module			
EDM RCS Pyrovalve NC 1/2"	TAS-F	Sep-10	Element of the EDM Reaction Control System operating during the descend phase
EDM RCS Pyrovalve NC High Flow 3/4"	TAS-F	Sep-10	Element of the EDM Reaction Control System operating during the descend phase
EDM GNC SCOE	TAS-I	Oct-10	Avionics SCOE to simulate missing GNC units during test, provide electrical stimuli to GNC sensors, simulate the propulsion, provide dynamic simulation for EDM closed loop test
Crushable structure	Sener	Nov-10	Manufacturing of Baseplate and crushable material elements
EDM DH SCOE	TAS-I	Nov-10	Set of DH EGSE for data exchanging with the various EDM units and between EDM and OM during testing.
EDM power SCOE	TAS-I	Nov-10	Set of Power EGSE for supplying power to the various EDM units and simulating OM power line towards the EDM during testing .
EDM MGSE	TAS-I	Dec-10	Set of MGSE for supporting integration, handling, storage and trasportation of EDM models.
EDM ASW / Support SW	TAS-I	Jan-11	OBDH SW components coding and tests and support to TAS-I for detailed design and integration/validation
EDM Harness	TAS-I	Jan-11	Whole harness manufacturing and test for the Surface Platform and the backcover of the EDM
EDM TMTC FEE	TAS-I	Jan-11	EGSE used to decode the telemetry streams coming from EDM and transmit to Central Checkout System and to encode the telecommand sent from CCS for transmission on board
UHF Antenna (patch)	TAS-I	Apr-11	Patch antenna to be installed on the EDM backcover allowing communication during the EDL phase
EDM Aeroshell TCS MLI	TAS-I	Apr-11	Internal and External Multi Layers Insulator for the EDM
Propulsion Bay Rechargeable Battery	TAS-I	May-11	Secondary battery for the
UHF Antennas (Helix)	TAS-I	Jun-11	Helix Antenna to be installed on the Surface Platform for communication during the surface mission
Environmental Test Facilities	TAS-I	Jun-11	
EDM simulators	TAS-I	Jun-11	SC simulators for providing the OMB with a representative interface like communication protocol.
EDM OBSW ISVV (EDM)	TAS-I	2011	Critical On Board Softwares Products validation by a third party under Prime control

Rover Module



Equipment	Procuring Company	ITT out	Brief Description
Rover Module			
Rover to PPL Interface Simulator	TAS-I	Nov-10	SC simulators for providing the Pasteur Payload developers with a representative interface like communication protocol.
RM MGSE	TAS-I	Mar-11	Set of MGSE items for perfoming integration and handling activities on the ALD and the needed adapter for the Environmental test campaign.
RM Environmental Test Facilities	TAS-I	Oct-11	
PPL SW	TAS-I	Dec-11	SW in charge of the commanding & observation of the Instruments and of specific scientific data processing and compression
RM OBSW ISVV) (RM)	TAS-I	2012	Critical On Board Softwares Products validation by a third party under Prime control

RM On Board SW– Mission Management SW



The PPL SW in charge of the commanding & monitoring of the Instruments, specific scientific data processing and overall data compression.

A Contractor will be selected for develop and produce the whole Pasteur Payload Manager SW. The main tasks will be:

- **Starting from TAS-I baseline requirement, implement the full lifecycle from Technical Specification till relevant validation to be eventually performed at TAS-I facility.**
- **Support the Prime in the final validation against the Baseline Requirements**

Indipendent Software Verification & Validation

The policy is to submit the critical SW to ISVV.

ISVV activities will be performed by an independent Contractor, under direct control of the Prime, not involved in the software development process, to assess both the processes and the resulting products.

OBSW for ExoMars Mission 2016 is critical, thus all developed SW products will be submitted to the review cycle of the ISVV.

For the 2018 missions, a subset only of the RM OBSW is classified critical.

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