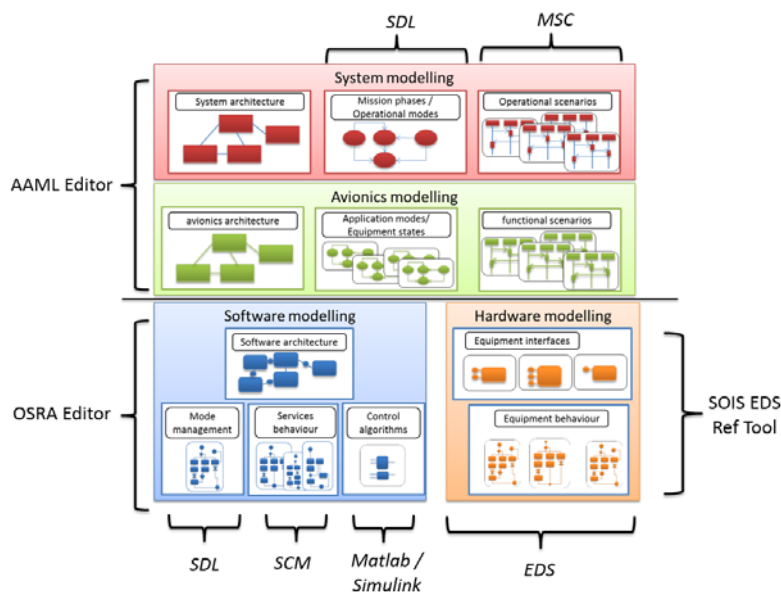


Verification of Computer-Controlled Systems

The VERICOCOS study (contract 4000113294/15/NL/FE) aims at fostering the use of behavioural modelling for the development of computer-controlled systems using dedicated languages and tools.

The objectives achieved are the following:

1. Confirm the applicability and subsequently open the door to the generalized use of state machines and sequence diagrams for the specification, design, verification and implementation of on-board software. Behavioural modelling brings many advantages to the development process, avoiding ambiguities in the system specification through clear semantics, enabling early V&V before starting the implementation phase, and ensuring the source code and design are aligned even in the presence of evolving requirements.
2. Produce a tool development framework. On the one hand, AAML and OSRA Editors are selected to design the architecture at System, Avionics and Software levels, relying on ESA TASTE's OpenGEODE and MSC Editor for behavioural modelling. On the other hand, SOIS EDS toolchain is selected for Equipment modelling, through the use of Electronic Data Sheets (EDS).



The toolset includes additional capabilities such as state machine simulation, code generation, and documentation generation, representing a complete framework for the development of space systems.

3. Apply the tools on a space-representative case study. Namely, the IXV (Intermediate Experimental Vehicle) mission for the System, Avionics and Software levels, and the NPAL (Navigation for Planetary Approach and Landing) Camera ICD for the Equipment level.
4. Provide training material with the results of the study to disseminate the acquired knowledge and know-how on the topic of behavioural modelling.

To this end, the VERICOCOS consortium was composed by the following partners: GMV Aerospace and Defence S.A.U. acting as prime contractor; and Thales Alenia Space France, SCISYS Ltd, GMVIS Skysoft SA, acting as subcontractors.