SAVOIR

space avionics open interface architecture

Industrial perspectives: The views from unit suppliers

RUAG Space, Selex Galileo, Terma

Benefits from the SAVOIR activities

- The results from the SAVOIR activities are mainly seen in the ESA study RFQs, where the results from SAVIOR-FAIRE, ASRA etc. are used or referred to in SOWs.
- So far there is little impact in programs:
  - Basically no impact in running programs
  - One or two influences seen in RFQs/RFIs from primes for future programs
- The expectation is that the influence will increase and that the SAVOIR documentation will influence coming programs like EUCLID.

Expectations for the future

In programmes:

- Less variations in requirements from programme to programme
- Less programme specific documentation
- Less documentation in general

In R&D:

- Less risk in product development
- Less complex products
    - No need to adapt the product to multiple interfaces
    - No need to have different versions of a function

→ Overall lower cost for the space community

Examples of how SAVOIR is used (RUAG)

- The consolidated avionics functional block diagram has been useful when streamlining internal development efforts
- SAVOIR concepts are used in ongoing programs and introduced in programs and development activities to be started
- The OBC product is easier to adapt than the RTU product
  - The OBC functionality has always been more standardized and SAVOIR introduces no revolution for the OBC

    → a modern OBC like the one for Solar Orbiter is almost fully SAVOIR compliant
  - The RTU functionality is today less standardized and its standardization has system impact on for instance:
    - RTU communication protocol
    - RTU interface redundancy philosophy (e.g. hot/cold)

    → more harmonization effort and discussions with primes are needed to have a SAVOIR compliant RTU

Examples of how SAVOIR is used (Selex Galileo)

In the attitude sensors field (a “very conservative World”) the effects of SAVOIR are expected more in the long term, mainly for 2 reasons:

- the products already existing in tens of different configurations in order to cover many customer specific interface requirements.
- Any modification would mean large development costs and imply long time for regaining “sellable” in-flight qualification.

First attempts of standardization are already successfully running for the Unit Simulation Models (a much simpler item than Flight HW!), while things are moving also on Electronic Interface Data Sheets, which should lead to some standardizations at least in the data package, thus bringing costs down.

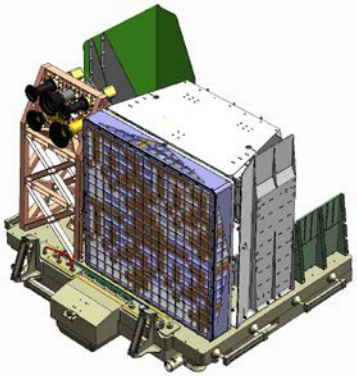
I/F specifications and standardization rules for new generation products shall anyhow be studied carefully (and SAVOIR is on top of that!) to avoid that sensors simple by definition (e.g. sun sensors, MEMS gyro) gets “overloaded” in the name of a standardization aimed to make every final user happy.

Anyone shall accept to change something if we want to standardize …

We are ready to adapt our products roadmaps to SAVOIR specs.

Examples of how SAVOIR is used (Terma)

Use of SAVOIR FAIRE on ASIM



- Flight equipment consisting of two instruments, MMIA & MXGS, each running on own OBC
- Terma has developed a toolset supporting the design principles and the development process advocated by SAVOIR FAIRE (i.e. the vertical transformation from functional view to the computational view)
- The two designs of the software for the instruments are expressed as component models in UML complying with the principles of SAVOIR FAIRE (implying for instance that all concurrency aspects are expressed by means of attributes of the provided operations)

- SAVOIR FAIRE supports that the major parts of the software are shared between the two instruments (e.g. the platform specific part). Shared components are designed separately as common component types, and they are used in the instrument designs by instantiating these common component types.

Contact

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