

Recalling SAVOIR

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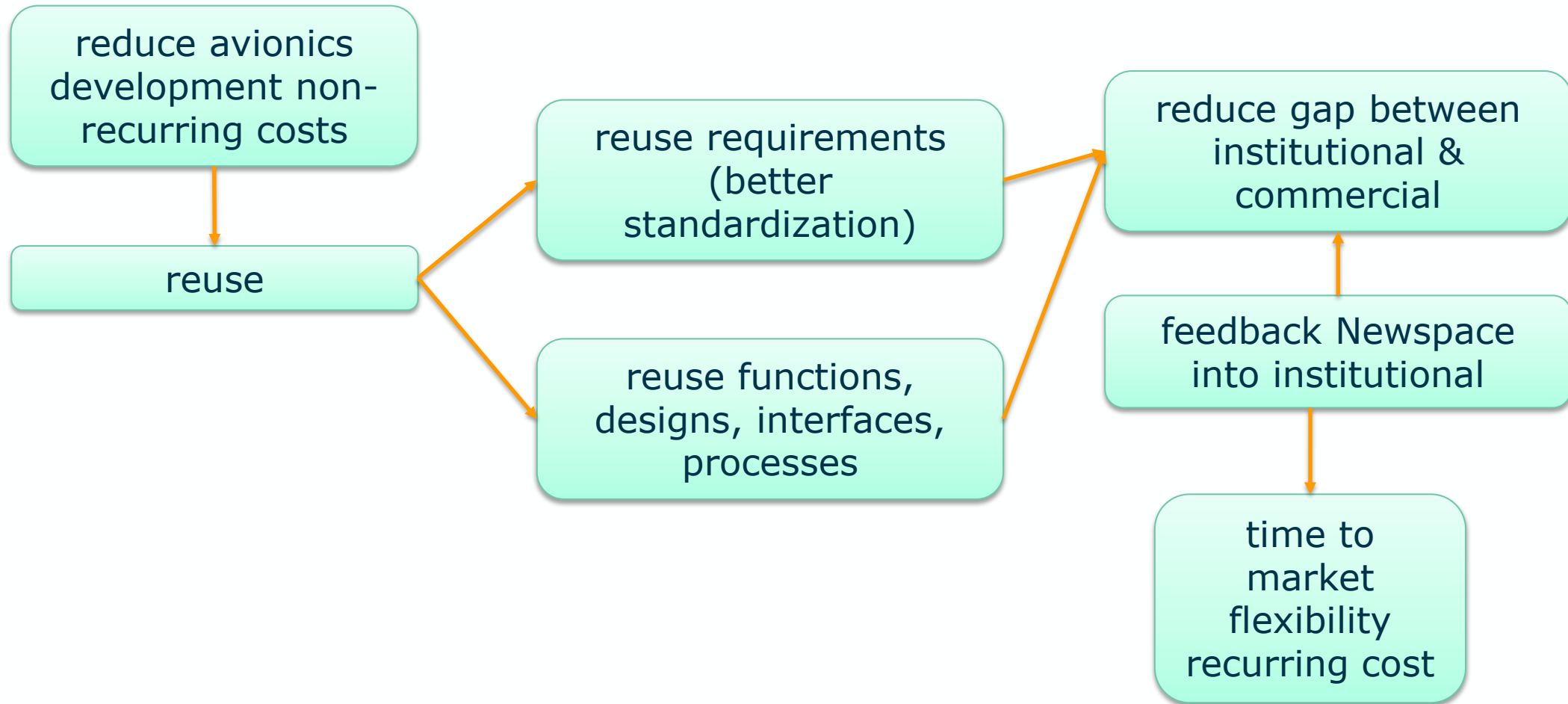
ESA ESTEC

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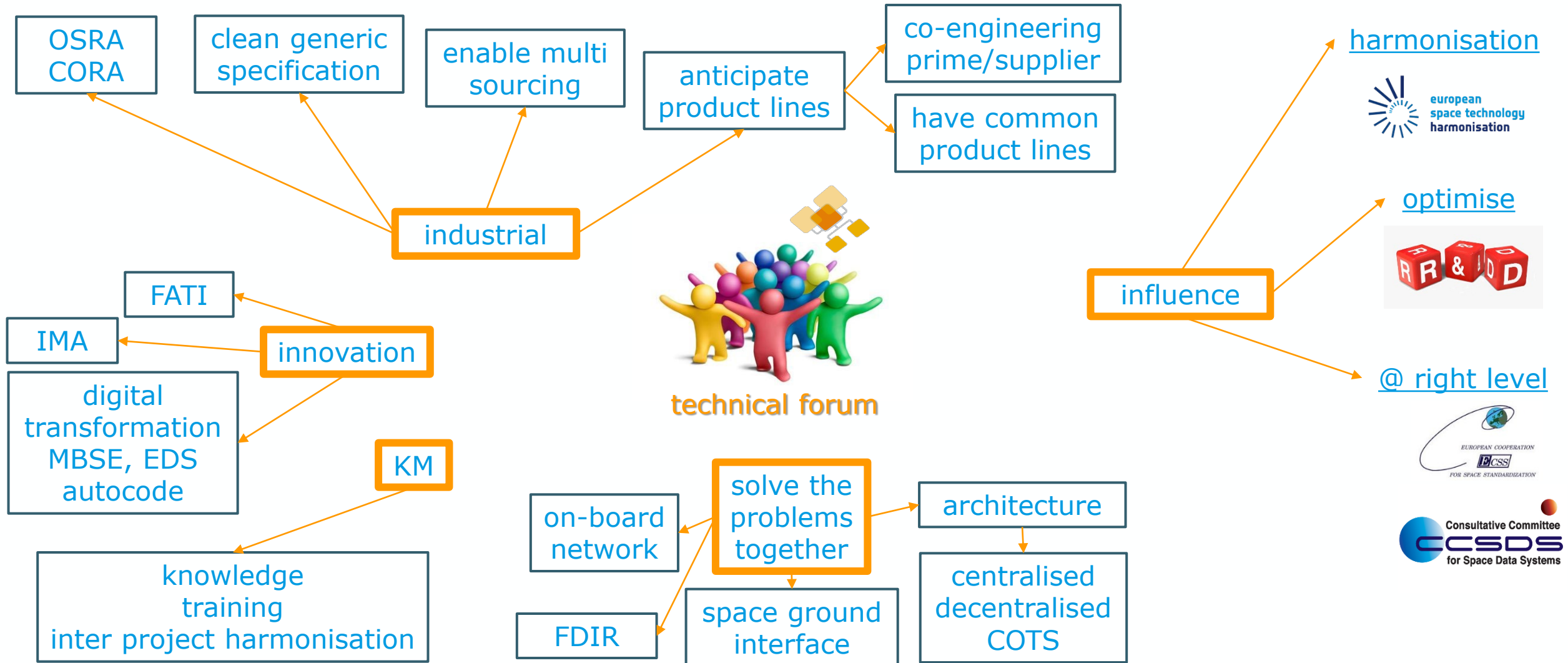
- An action stemming from the European Technology Harmonisation Group (**THAG**) led to a round table on **Avionics Reference Architectures** in 2007, during which number of Actions were agreed.
- The overall goal of the **SAVOIR initiative** is to streamline the development of the avionics system for space programmes, considering the need to increase efficiency and cost-effectiveness in the development process and taking into account the trend towards more functionality implemented by the onboard building blocks, i.e. HW and SW components, and more complexity for the overall space mission objectives.
- As far as SAVOIR is concerned, the term avionics is meant to include:
 - Onboard data systems
 - AOCS, including software, sensors , actuators
 - Flight software
- The scope of SAVOIR also covers P/L data handling for the elements having strong commonality with the platform avionics. Interfaces with e.g. power system, TTC need to be considered.

SAVOIR was kicked off the 25th November 2008. A preliminary list of Building Blocks was introduced.

- How to disseminate the work and results?
- ADCSS existed since about 2005
- Only in 2009, a day was dedicated to SAVOIR for
 - the presentation of the results of the two working groups on software and AOCS electrical interface
 - presentations on various R&D roadmaps and harmonisation.
 - The list of Building Blocks was updated.
- This makes this year 15 years of SAVOIR in ADCSS



SAVOIR is active



Products

- Savoir is a top-level forum for customers and suppliers
- Savoir produced clean requirements, without design constraint, with justification, with example
- Savoir allows to develop common product for all customers, to build continuity between market institutional – commercial

Interoperability

- The goal is to decrease mission adaptation cost, and non-recurring cost
- Electronic Data Sheet will allow to describe any interface in a model-based context
- Software architecture component based allows to sub-contract component
- Ground Board Operability is a source of variability and must be streamlined.

Knowledge

- Handbooks are available for training in companies, e.g.
 - OSRA set of training on software Space Component Model, targeted to several roles of the software team.
 - ASRA handbook describing how to use the hardware reference architecture, also training slides available

Influence

- Influence R&D
 - Savoir inject needs in the future R&D plans and is used as platform to support harmonisation
- Influence Standards
- Savoir is a forum to discuss innovation (integration, model based, reprogrammable FPGA, harmonised avionics validation infrastructure)

SAVOIR Output



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DOCUMENT

SAVOIR Functional Reference Architecture

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Generic Operations Interface Requirements Document (GOIRD)



DOCUMENT

SAVOIR FDIR Handbook



Prepared by
Reference
Issue Revision
Date of Issue
Status

Customer specs

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DOCUMENT

SAVOIR Generic OBC Functional Specification

Prepared by
Reference
Issue
Revision
Date of Issue
Status
Document Type
Distribution

European Space Agency
Agence spatiale européenne

Reference architecture



Prepared by
Reference
Issue
Revision
Date of Issue
Status
Document Type
Distribution

European Space Agency
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Handbooks



Prepared by
Reference
Issue
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Distribution

European Space Agency
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Reference specifications



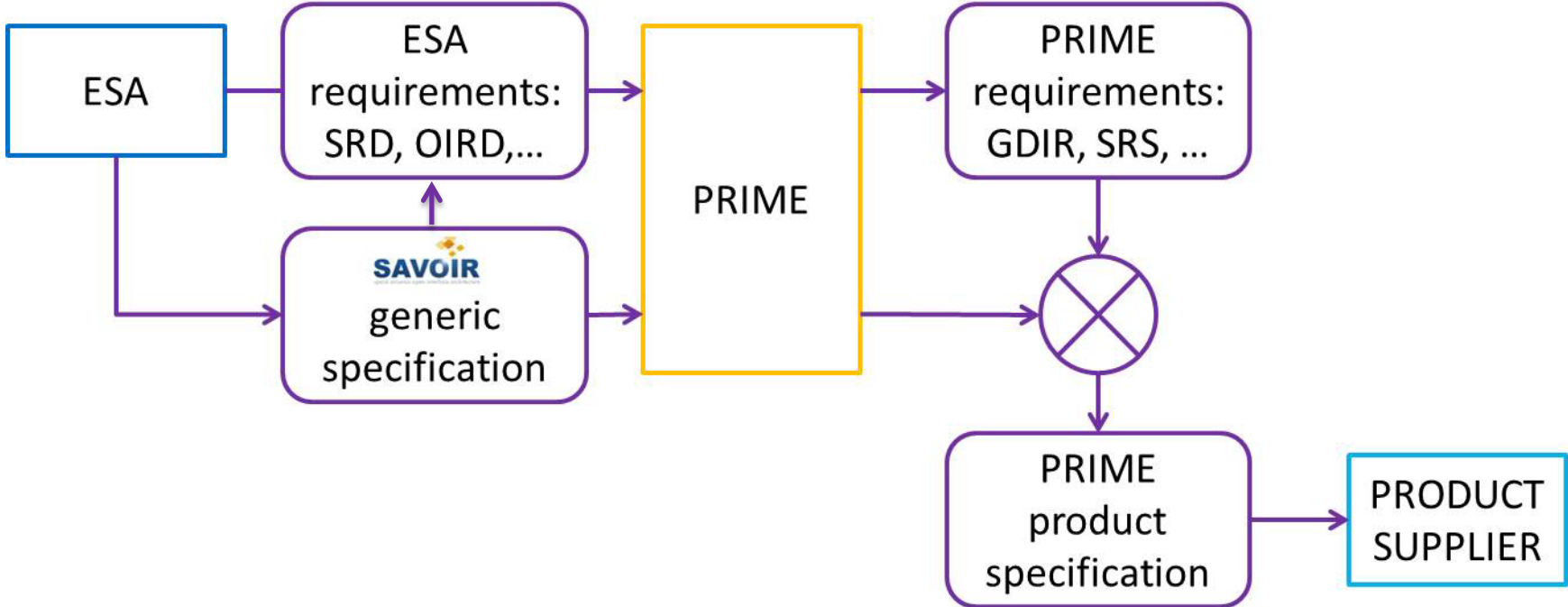
Who participates



With possible specific involvement of additional participants in dedicated Working groups



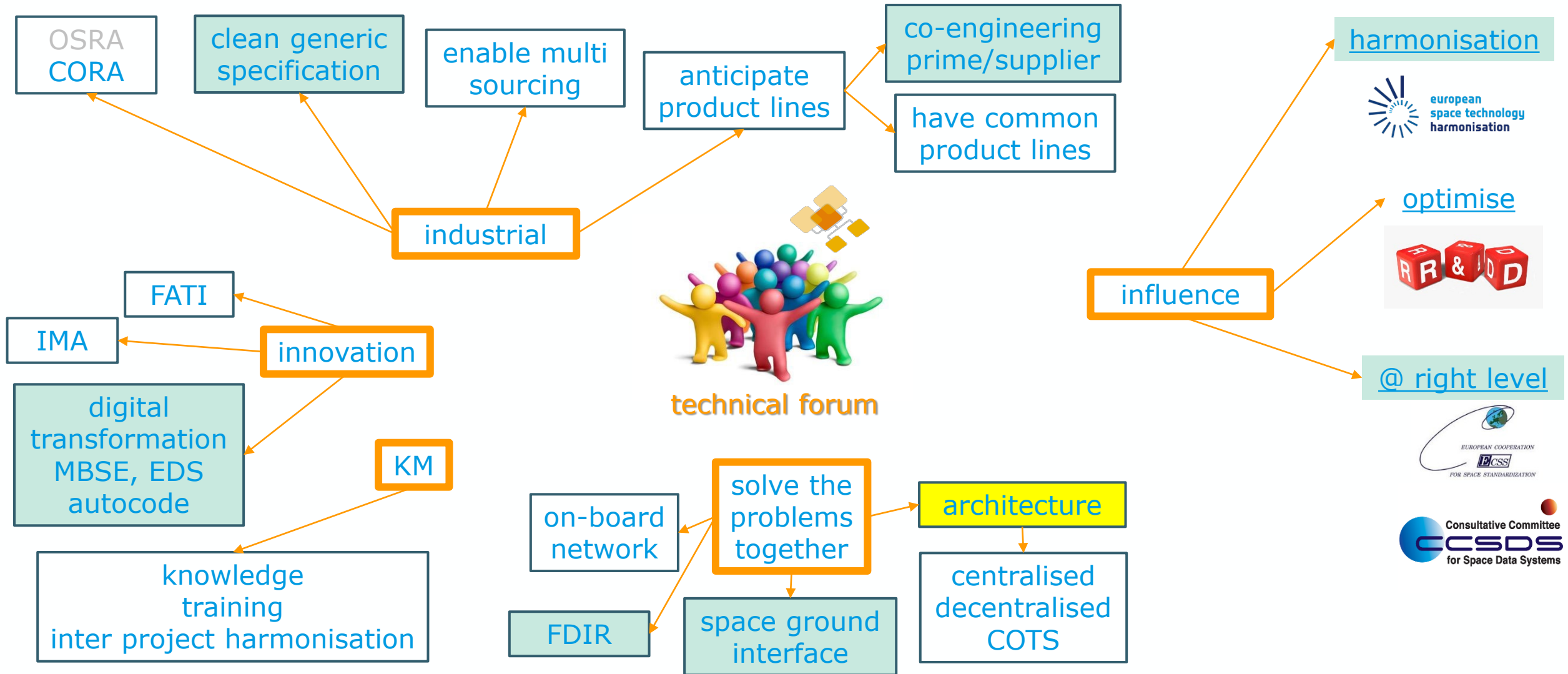
Use of SAVOIR documents



The list is intended to be up to date on:
<http://savoir.estec.esa.int>

Available documents are released on the Esa Space
Software Repository
<http://essr.esa.int>

SAVOIR is active :



Brainstorming for the Future



- Ensure appropriate triggers and input from suppliers
- Evaluate the need for updates in architecture or interfaces (technology, mission scope)
- Bridge the “functional gap” for ADHA
- Do future missions (e.g. manned space, lunar missions, ...) impact the scope of SAVOIR, e.g.
 - Increase of functions (e.g. manned spaceflight)
 - Distribution of functions (e.g. space station, constellations) and potential cut through the functions with the implications that new interfaces are created
- Importance of education about SAVOIR - needs update to synthesise in 2-3 slides (high level)
- What is the impact of NewSpace
 - As potential user community
 - As influencer for new technologies and approaches



SAVOIR : Today



09:00	Welcome	Welcome
09:15	SAVOIR - a short overview	General intro, highlights of the past
09:30	SAVOIR - User benefits and outlook	
		OHB
		TAS
		Airbus ADS
		GMV
		Sodern
		Beyond Gravity
11:00	Coffee Break	
11:30	Status of SAVOIR working groups	FDIR handbook
		Power WG status
		EDS WG
		Solar System Internet, Communication and Navigation Systems – Technology Vision 2040
		Pointing Engineering Handbook update
13:00	Lunch	
14:00	Proposals for new activities	HW autocoding
		Multi-core
		PL interface
14:45	Status Standardisation	ECSS NG - Status
15:00	Status Harmonisation and R&D plans	Avionics Embedded Systems (AES)
		AI
		MBSE
		AOCS and GNC
15:30	Coffee Break	
16:00	Exhibitor's elevator pitches	
17:00	Drinks	



Feedback: savoir@esa.int

<http://savoir.estec.esa.int>

<http://essr.esa.int>



SAVOIR Advisory Group:

- Jean-Loup Terrailon – ESTEC/TEC-S
- Joachim Fuchs – ESTEC/TEC-SW
- Ali Zadeh – ESTEC/TEC-ED
- Bénédicte Girouart – ESTEC/TEC-SA
- Andrea Accomazzo – ESOC/OPS-O
- Pascale Moro – CNES
- Frank Dannemann – DLR
- Rémi Roques – AirbusDefence&Space
- Orion Azzis – ThalesAleniaSpace
- Pamela Fröhner – OHB
- David González Arjona – GMV
- Patrik Sandin – RUAG
- Antoine Lacroix – Sodern