

THE EUROPEAN SPACE AGENCY

→ UNITED SPACE IN EUROPE

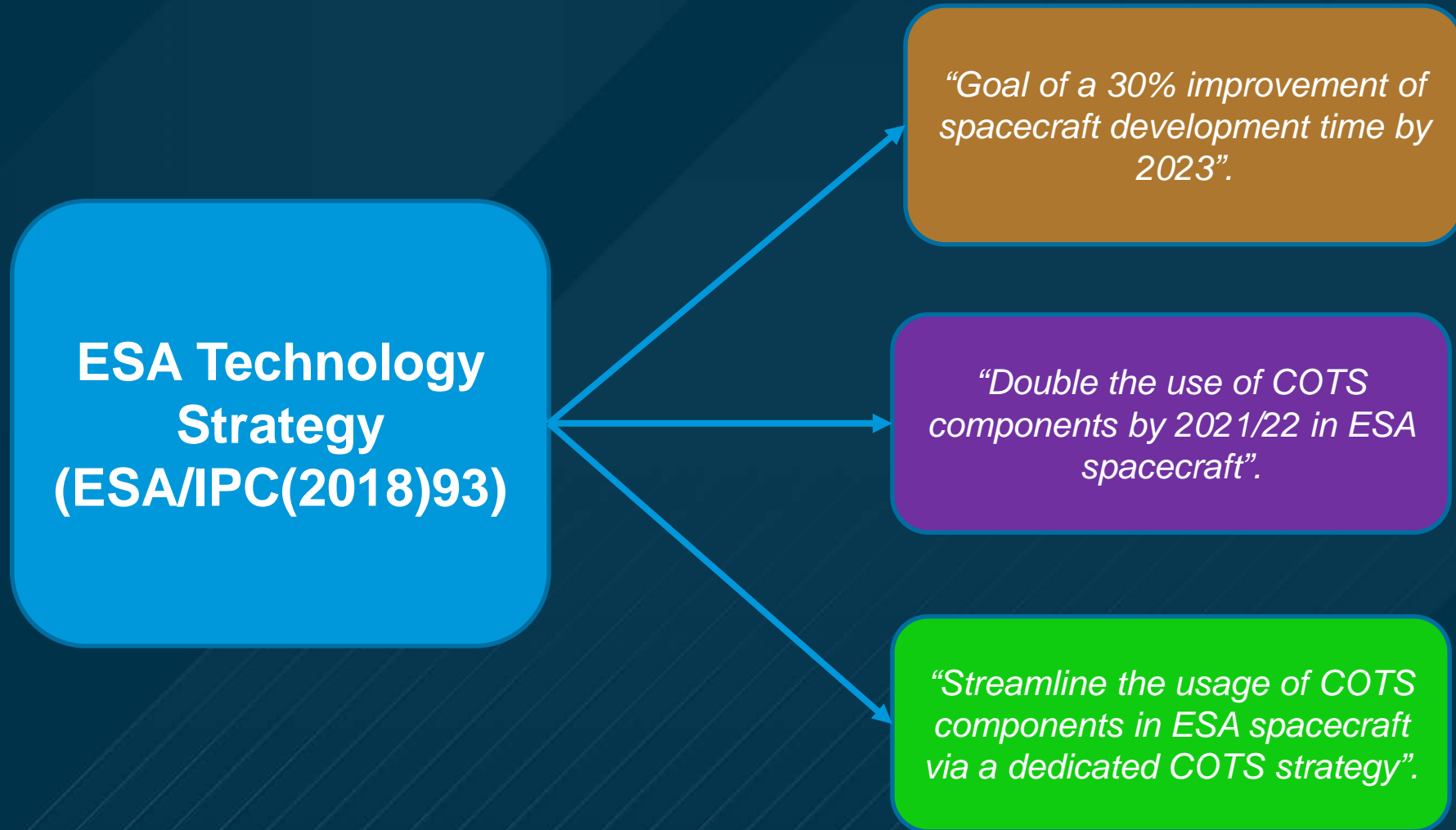
ESCCON
ESA OSIP call on EEE COTS

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Policy Issues

ESA Mission Classification: framework defined for the different mission profiles.
Guidelines for the utilization of COTS components and modules in ESA (Technical Note) - First version in review

Normative Issues

COTS Standard ECSS-Q-ST-60-13 update: implementing final changes prior to public review – separate presentation tomorrow by PSWG chairman
Rad Hard devices in “plastic” packages: Specification ESCC9000 “P” update in preparation.

Communication

Coordination, Bilateral Discussions and Workshops: ACCEDE workshops (next spring 2022), regular bilaterals with Industry, Agencies and ESA-NASA-JAXA trilateral

Technical Issues

Safe Operating Template for Criticality Classes : The template has been validated, first data collected.

COTS and Modules Information gathering: Centralised database, populated with what works and equally important what has not.

Definition of activities for Reference Application Circuits: template completed, next steps to be defined after top components have been identified.

New Test Methods for Modules and Boards: Draft Technical note, key is thinking outside the box.

Lead Free Recommendations: WG established, Lead free mitigation techniques.

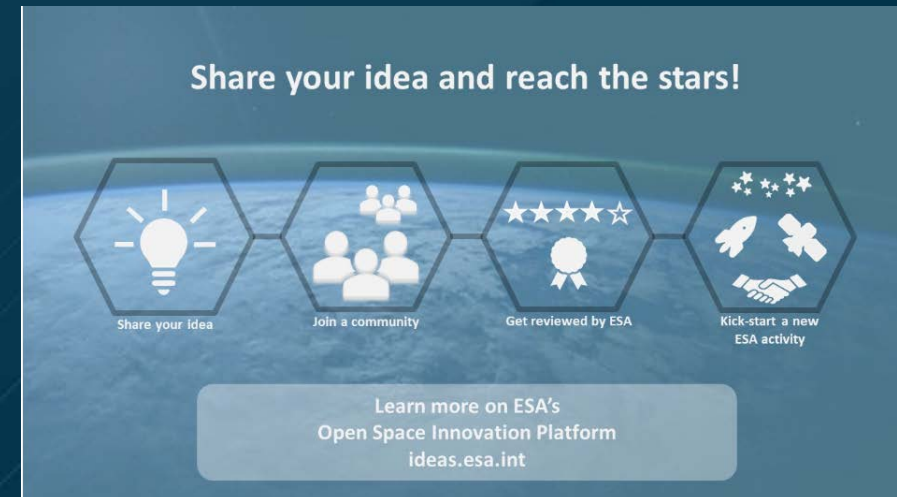
Good practices for Radiation Environment and Test: Recent workshop “RADMON 2020”, plus ongoing radiation monitor developments and flight opportunities under investigation.

What did we learn ?

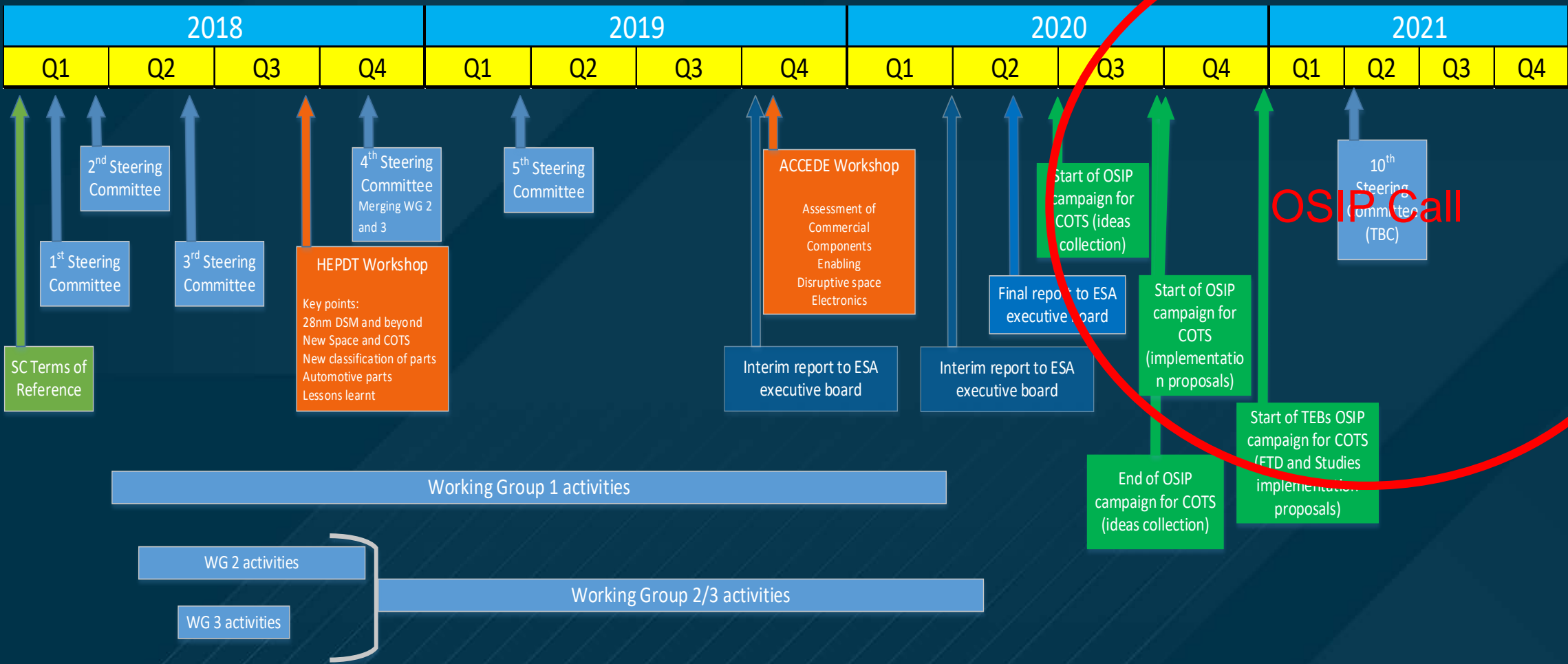
- **High interest** in the topic "COTS" – witnessed by the high registration level and attendance (250+)
- Big demand to share information: higher when it comes to getting COTS data and lower willingness for providing it !
- Key Concerns:
 - Lot traceability
 - Minimum order quantities
 - Qualification and Reliability
 - Maintaining supply chain for ESCC components
 - Access to reliable performance/radiation data
 - Lack of space heritage
 - Design mitigation



OSIP



ESA Initiative on COTS



https://www.esa.int/Enabling_Support/Preparing_for_the_Future/Discovery_and_Preparation/The_Open_Space_Innovation_Platform

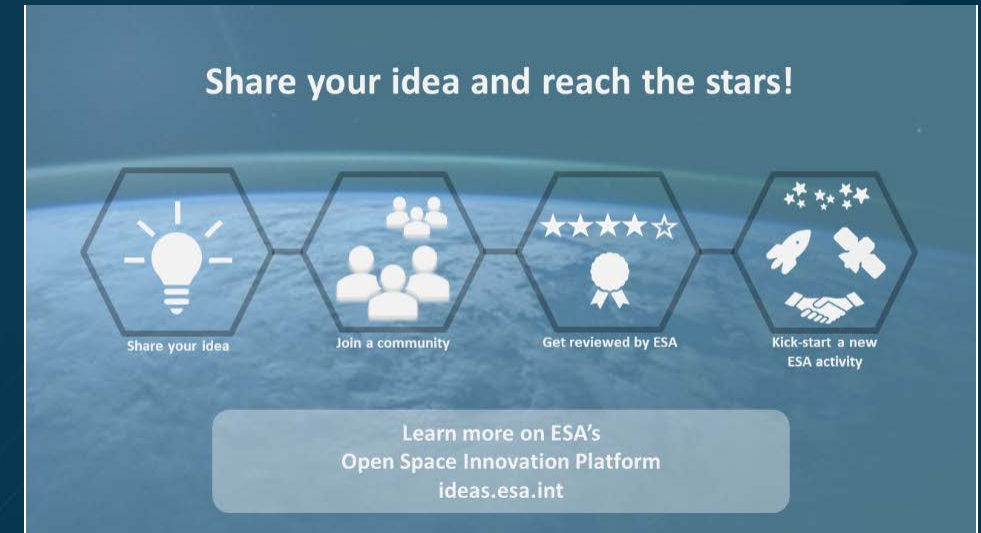
- What is it?
- Why was OSIP set up?
- How can I submit an idea?
- Who implements OSIP?

Plus

- General condition of participation
- Terms and conditions
- Privacy notice

Link to OSIP:

<https://ideas.esa.int>



Studies (20 - 100k€), “GSP” : emphasis on the novelty of the concept. Maximum duration is 12 months.

Early technology projects (50 - 175k€), “ITI” : emphasis on novel, low TRL activities of potential interest to space applications. This includes activities covering among others risk reduction, proof of concept and technology developments up to prototype level with proven customer interests. Maximum duration is 18 months. Early technology development activities are typically implemented in two stages (proof of concept, demonstration) with a decision point in-between where ESA will decide on whether the activity should continue. A written statement of industrial interest (customer support letter) by the customer interested in using the technology should be provided for early technology developments during proposal phase.

Co-funded Research (20 - 90k€), “NPI” : Experience has shown that very innovative ideas are often generated by universities. Research activities under this heading, lasting between six months and three years with budgets including the co-funding of PhDs (three years, former NPI initiative) and of post-doctoral projects (typically two years). Co-funded research activities follow a fast-track processing entirely on OSIP.

Other : ideas not fitting into any of the three paths. In this case the idea - if relevant – is sent to one of the other ESA programmes (it will not be evaluated in OSIP).

- **After gathering the ideas:**
 - A community discussion phase, allows other platform users to vote and comment on ideas, sparking dialogue between users.
 - Ideas can still be developed and edited.
 - Additional authors can also be added, leading to collaboration between users on specific projects.
- **Evaluation**
 - When idea are declared ready for evaluation by the author (channel) or the deadline has come (campaign), ideas frozen.
 - Eligible ideas will be evaluated by a team of ESA experts (and for ESA idea a panel of external evaluators).
 - If the idea is sufficiently interesting (average mark ≥ 60), it will move to the next stage, possibly with some suggestions for elaborations or improvements.
- **Selection**
 - Authors of selected ideas are directly invited to the second selection step.
 - The implementation is open only to those with an ESA identity Code, with a valid ESA-Star registration.
 - Standard SoW, Draft Contract and Tendering Conditions, normal ESA-Star procurement.

Open Space Innovation Platform Call on COTS

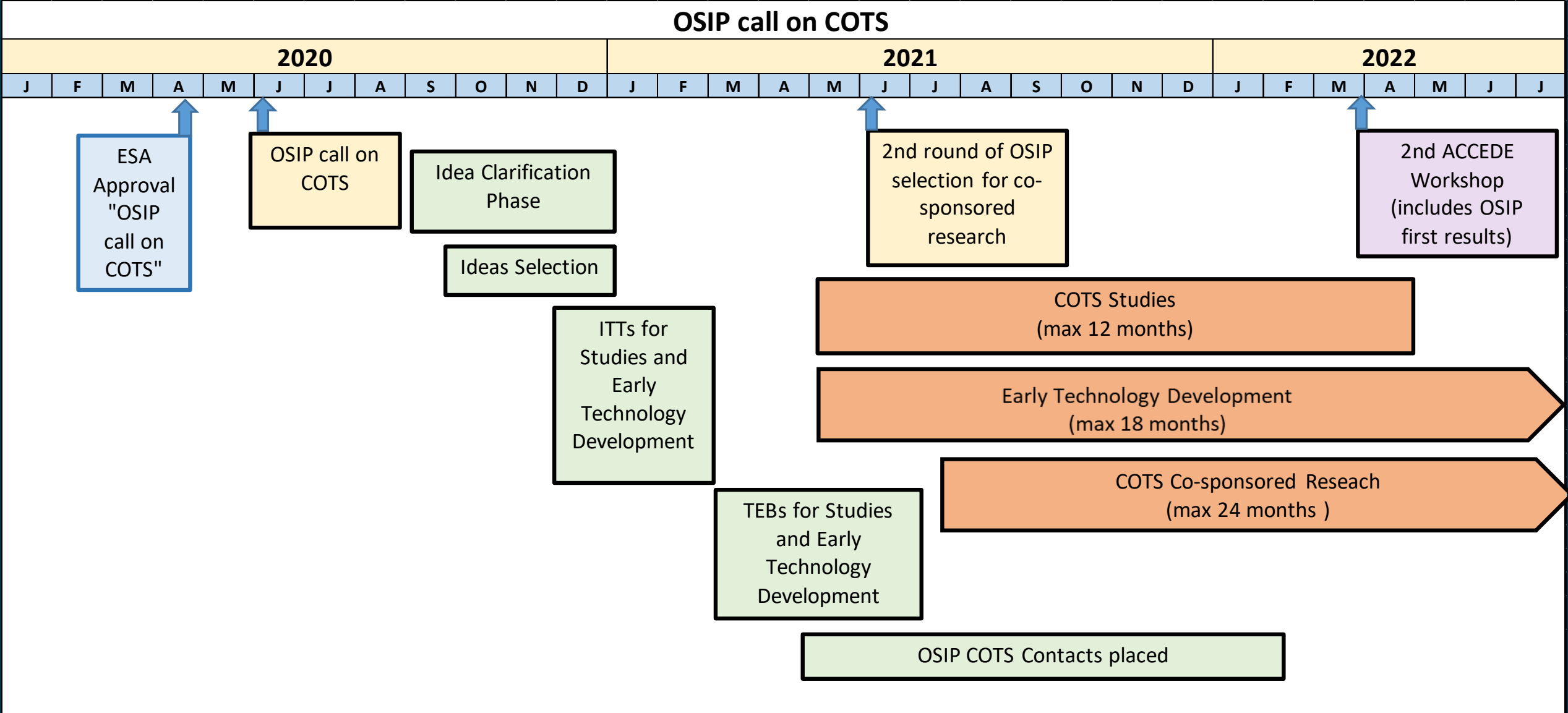
What is the ESA OSIP call on COTS

This OSIP campaign aims for **novel ideas specifically on COTS** related activities for the space sector:



- Adoption of **new key COTS components**, offering features, functionality and/or performance which cannot be achieved with Hi-Rel parts.
- New and smart **design mitigation techniques**.
- Effective and innovative **reference designs** adopting such design mitigation techniques.
- Novel **lead-free mitigation techniques**.
- New practices for **radiation environment modelling and testing**.
- New ways of **gathering, analysing and distributing COTS test and in-orbit data** to the ecosystem, as well as new test methods for components, modules and boards.

OSIP call – EEE COTS Timeline



Open Space Innovation Platform : COTS update

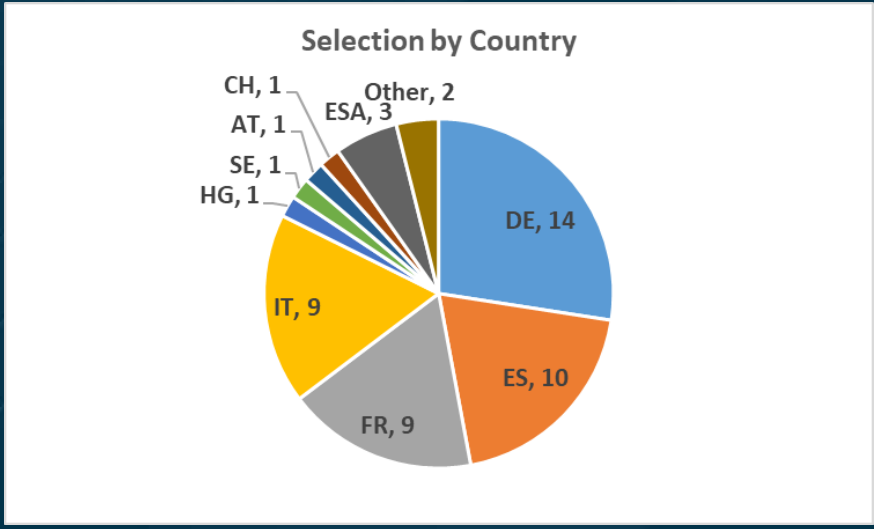
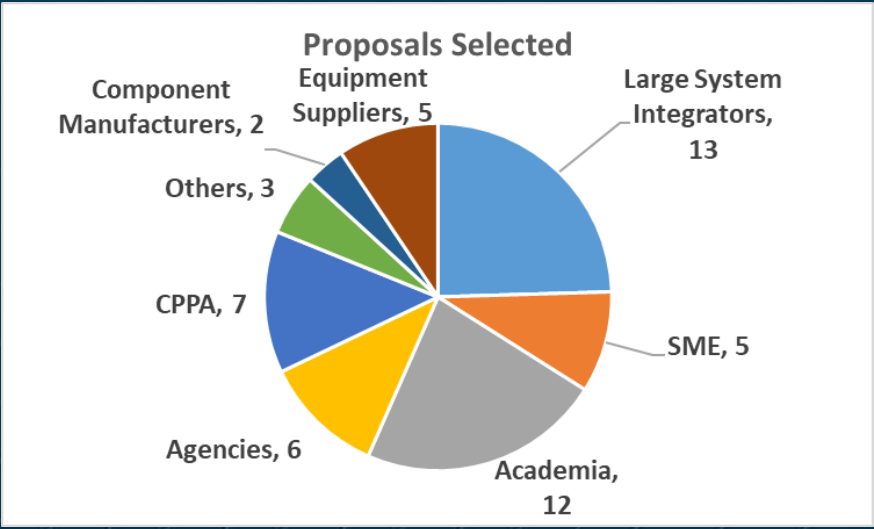
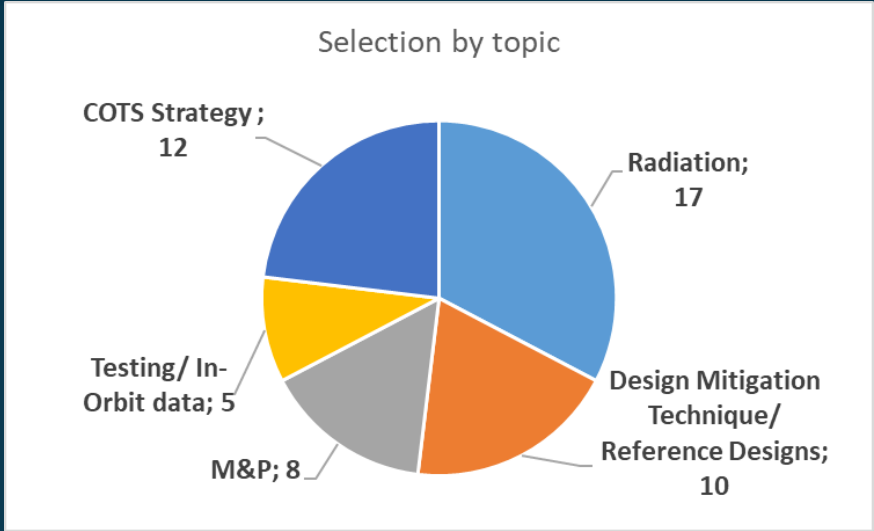
OSIP call: June 2020

Submitted ideas: 130 (of which 7 were from ESA)

Selected ideas: 52 (Criteria : marked at least good, > 60 points)

- **ITT's Ongoing (Direct negotiations)**

- 20: Early Tech Development (ETD), (175K max each)
- 26: Studies, (100K max each)
- 6: Co-sponsored research, (90K max ESA contribution each)



- ESA COTS activities has been on-going since early 2019 with various expert groups.
- Early on, it was identified that the dialogue with the industry and academy is necessary to build a full picture for the future utilisation of COTS.
- ACCEDE 2019 served as a platform to establish the agenda for the COTS OSIP call, ACCEDE 2022 will present the first results of the studies performed.
- OSIP platform served as a very useful way to address the COTS theme to the European ecosystem:
 - participation was balanced between different ESA Member States;
 - good representation of SMEs, academia, governmental entities and LSIs/equipment manufacturers
- ESA is utilising the OSIP platform for thematic calls, discussion are on-going to utilise it also for future EEE-component related themes.
- **Many thanks for all of the participants to the COTS OSIP call, it has been inspirational to work with you and we are looking forward to the results of the selected activities**

Thanks for your attention

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