



TARSIS Management Plan



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Abstract: TARSIS, **Tetra-ARmed Super-Ifu Spectrograph**, has been selected to compete in the Feasibility Study phase of the new instruments for the CAHA 3.5m telescope (Gil de Paz et al. SEA 2020). The Consortium, composed by CAHA, IAA-CSIC, UCM, INAOE, U. Sevilla, U. Granada, U. Almería, CAB (INTA-CSIC) and FRACTAL S.L.N.E, has experience individually and as a team (e.g. MEGARA and CARMENES). The PI and co-PI are fully supported and respected by the Consortium and their Institutions (UCM and IAA-CSIC) and the experienced PS and co-PS have set-up the scientific requirements for CATARSIS survey. The team binds highly motivated enthusiastic and committed persons at all levels. This contribution summarizes in few brush strokes the Management Plan. TARSIS is a schedule-driven project because (a) the survey have to be carried out on-time to have the desired high scientific impact and competitiveness; (b) the budget is conformed to the nominal calendar and (c) the funds have to be spent as the required rhythm (FEDER funds, National Plans etc.). We propose a calendar of 4 years from the final approval to the instrument shipping to CAHA, having the first light in 2025. We need a budget (cash / in-kind) of 6 / 10 M€ (20 % contingency included).

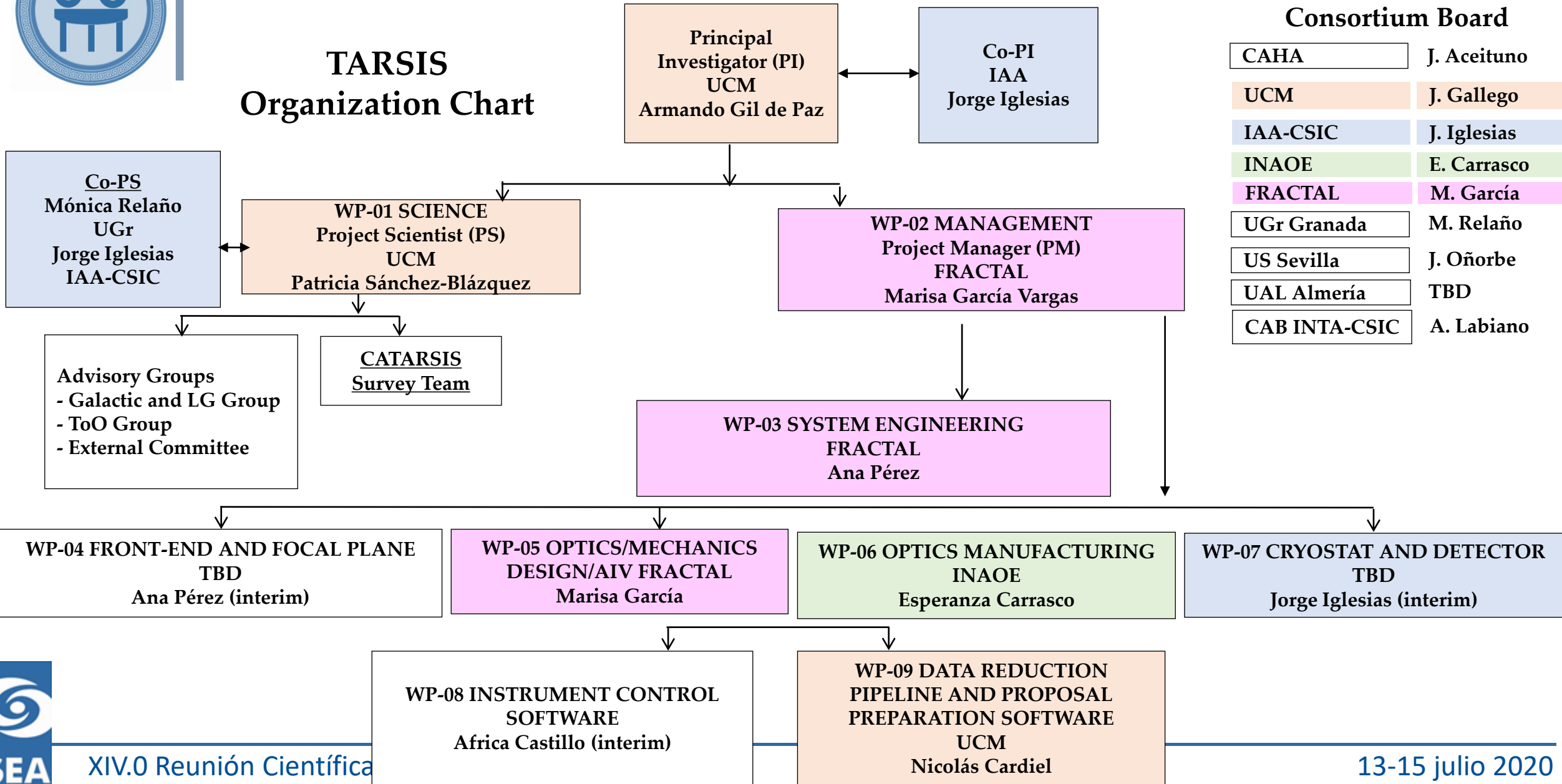


- Private company since 2005 (15th anniversary in August) providing engineering services for professional Astrophysics.
- Management and System Engineering services, including RAMS analyses (PM and SE for CARMENES and MEGARA)
- Instrumentation: Consultancy, Design, Development, Integration and Commissioning.
- Software development for Scientific Applications.
- Specialized Training (general or in-house courses, participation in masters).
- Scientific operations (Astronomy) at customer's site (OAN, ESA, ESO).
- Proprietary software for Management and System Engineering.
- AstroJobs Human Resources for Astrophysics.
- Partnership with Wasatch Photonics (VPH) and distributor for Europe.
- <http://www.fractalsne.es/>
- Video with FRACTAL activities: <https://youtu.be/161gsgbnRNU>
- <http://www.fractalsne.es/files/FRACTAL-Services-Instrumentation-and-software-general.pdf>





TARSIS Organization Chart



Consortium Board

CAHA	J. Aceituno
UCM	J. Gallego
IAA-CSIC	J. Iglesias
INAOE	E. Carrasco
FRACTAL	M. García
UGr Granada	M. Relaño
US Sevilla	J. Oñorbe
UAL Almería	TBD
CAB INTA-CSIC	A. Labiano



TARSIS Calendar

2020				2021				2022				2023				2024			
T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4

DESIGN STAGE

Feasibility Preliminary Des. Detailed Design

Feasibility Study 30Nov20 15Mar21 30Sep21 30Sep22

SP Opt PDR CDR

Shipping with 2: Sep 2024
Shipping with 4: Dec 2024
Commissioning: T1-2025

AIV

Blanks ordering Blanks Procurement Blanks in-house

31Mar21 15Oct23

DAY ONE March 2025

Start spectrograph Optics manufacturing Optics Manufacturing

End of Feasibility Study	30-Nov-2020
Blanks ordering	31-Mar-2021
Spectrographs 1, 2, 3	15-Oct -2023
Spectrograph 4	30-Sep-2024
Shipping 1, 2	30-Sep-2024
Day One	31-Mar-2025

SP-TARSIS #1 Optics Manufacturing AIV

SP-TARSIS #2 Optics Manufacturing AIV

SP-TARSIS #3 Optics Manufacturing AIV

Start FP Optics manufacturing 15Ago22 SP-TARSIS #4 Optics Manufacturing AIV

Focal Plane Optics Manufacturing 15Oct23

Structure Manufacturing 30Nov23

CRYOSTAT, DETECTOR AND DATA ACQUISITION SYSTEM

Detector ordering Detector Procurement

31Mar21 Cryostat, Electronics Procurement and SS assembly

Engineering prototype 1 2 3 4

SOFTWARE DEVELOPMENT

AIV release

13-15 Julio 2020 1.0

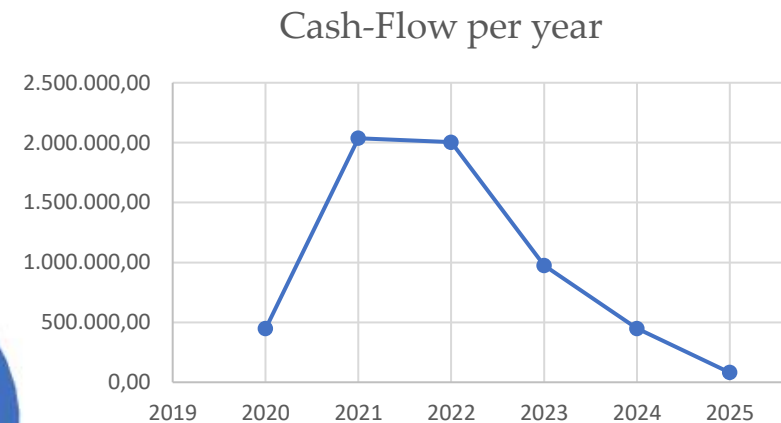
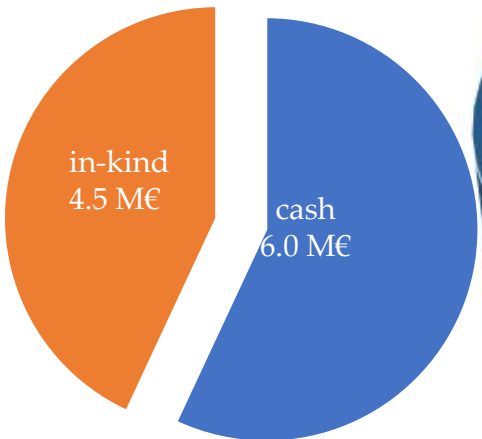
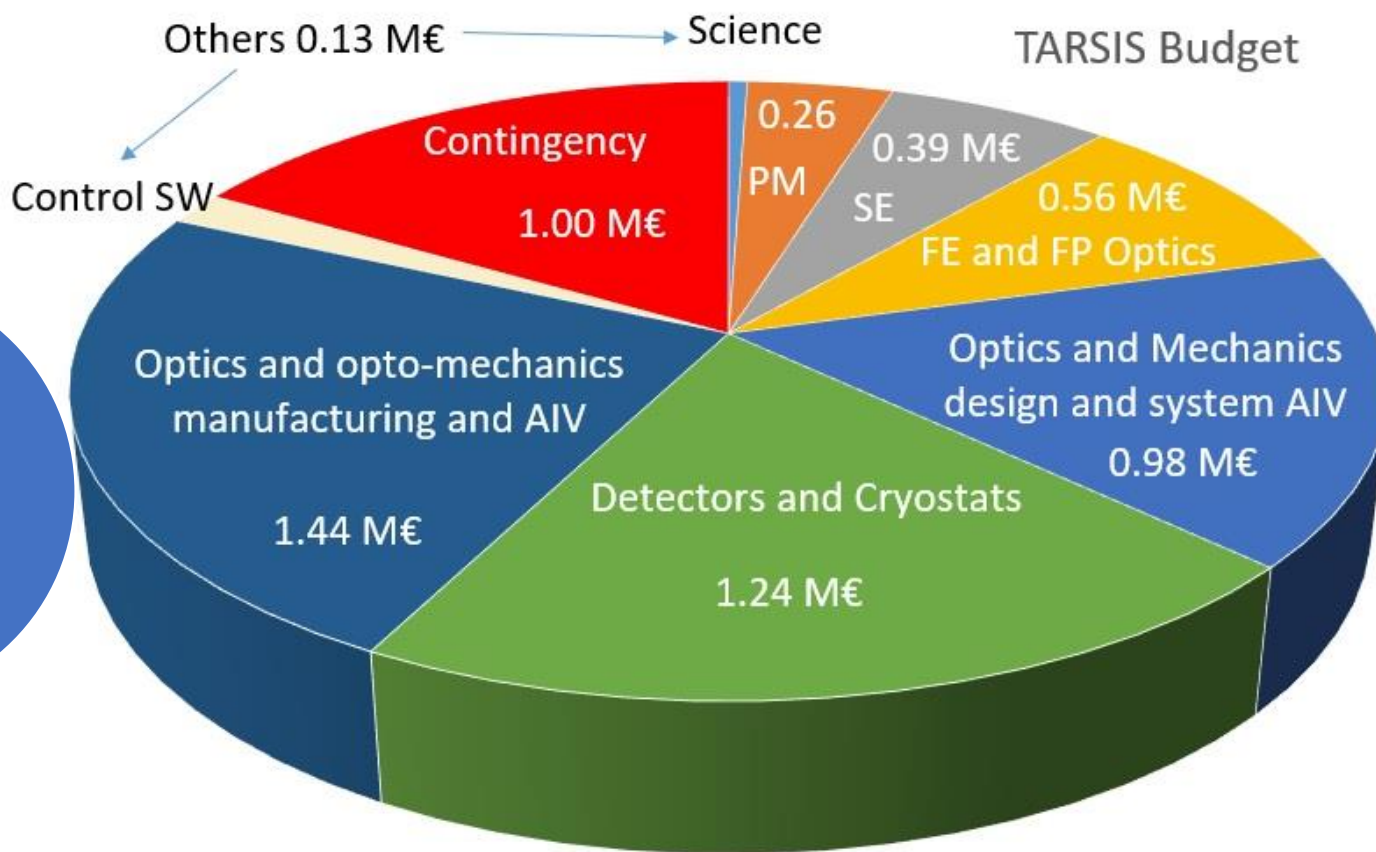




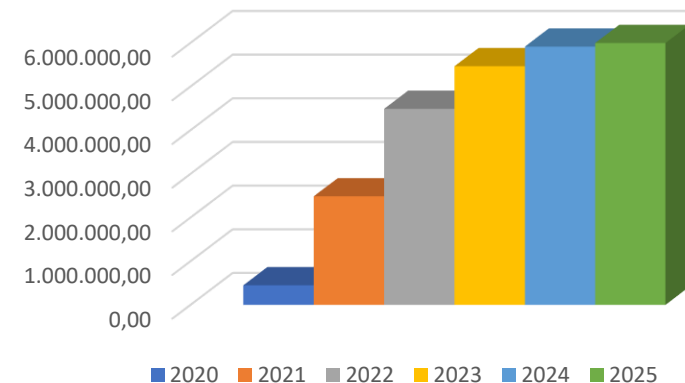
TARSIS Budget and Cash-Flow

Cash without contingency: 5 M€
 Cash with contingency: 6 M€

5 M€
 6 M€



Accumulated Cash Flow





Strategy and control

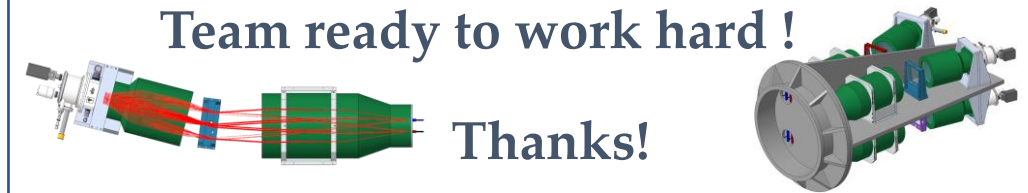


Management Configuration Documentation

- Implementation of SE procedures, tools and effective SE engineering ready for TARSIS
 - Define high level scientific, operational and maintenance requirements and flow down to specifications.
 - Define interfaces between subsystems.
- Scope control through System Engineering**

- Keep the design robust and simple **Risk control baseline**
- Calendar and Budget controlled with the detailed plan and tracking.
- Team building care with communication in all directions.
- Clear responsibilities, reporting lines and agreed project discipline.

- Milestones defined at the level of the project and assigned to tasks.
 - Schedule tracking is based on low level milestone control.
 - Each milestone is linked to parent milestones for schedule tracking.
 - Milestone's changes automatically update all tasks and calendars.
 - Critical path is calculated automatically and all neighbor milestones tracked. This method was successfully applied in CARMENES and MEGARA.
- Calendar control**



- Budget kept continuously updated.
- Funding sources control. **Budget control**
- Updated and realistic cash-in/cash-out figures.
- Purchase orders control and tracking.
- Export the updated Budget Table tree in a click.
- Classify the budget items according to their status.
- Define and apply Budget merit figures.
- Handle money, orders and contracts properly.