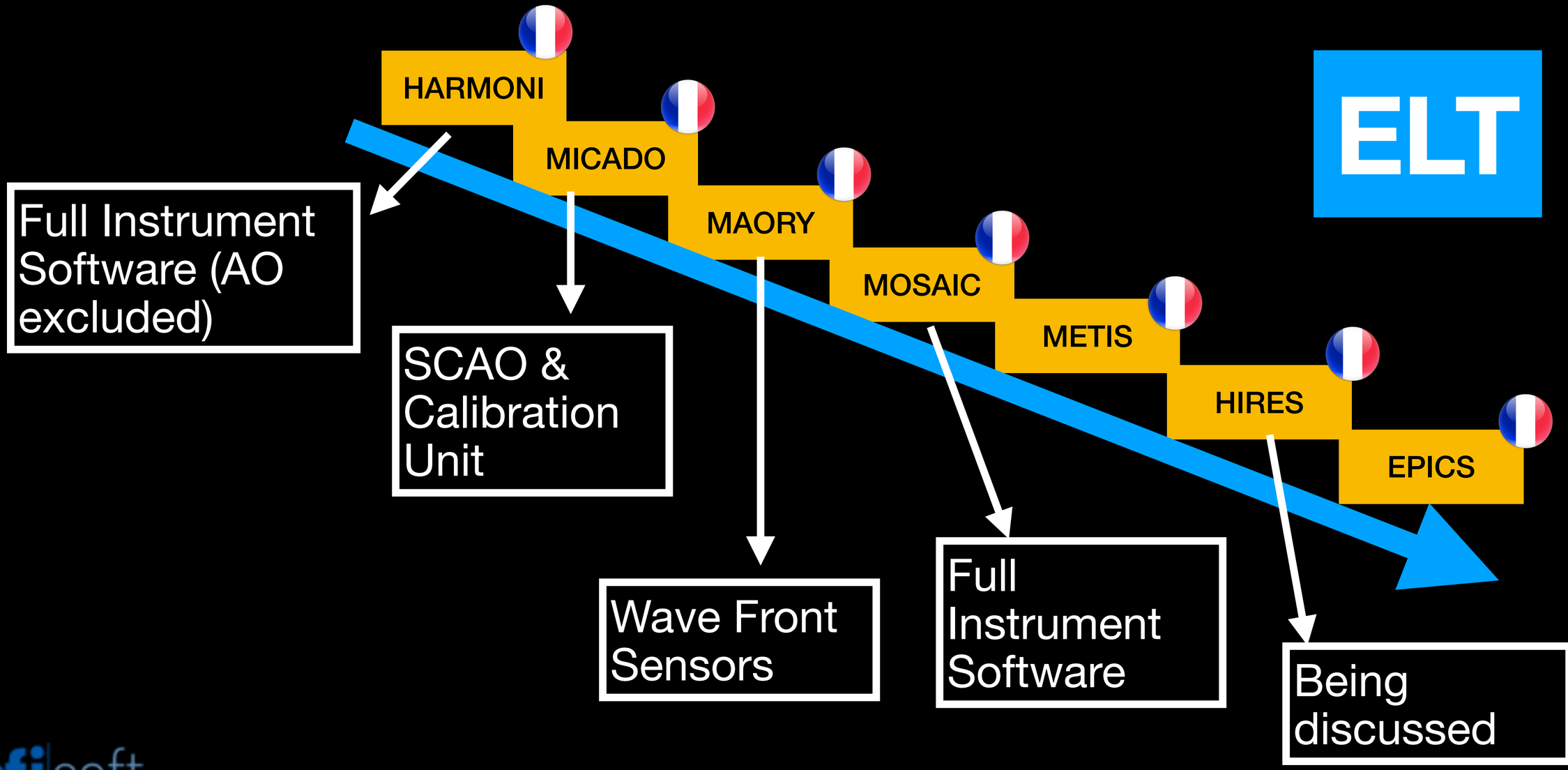
EFISOFT

ELT French Instrument control SOFTware expert group

Sylvain Guieu - 1st TETIS Workshop 27 of October

Context - ELT Instrument French implication



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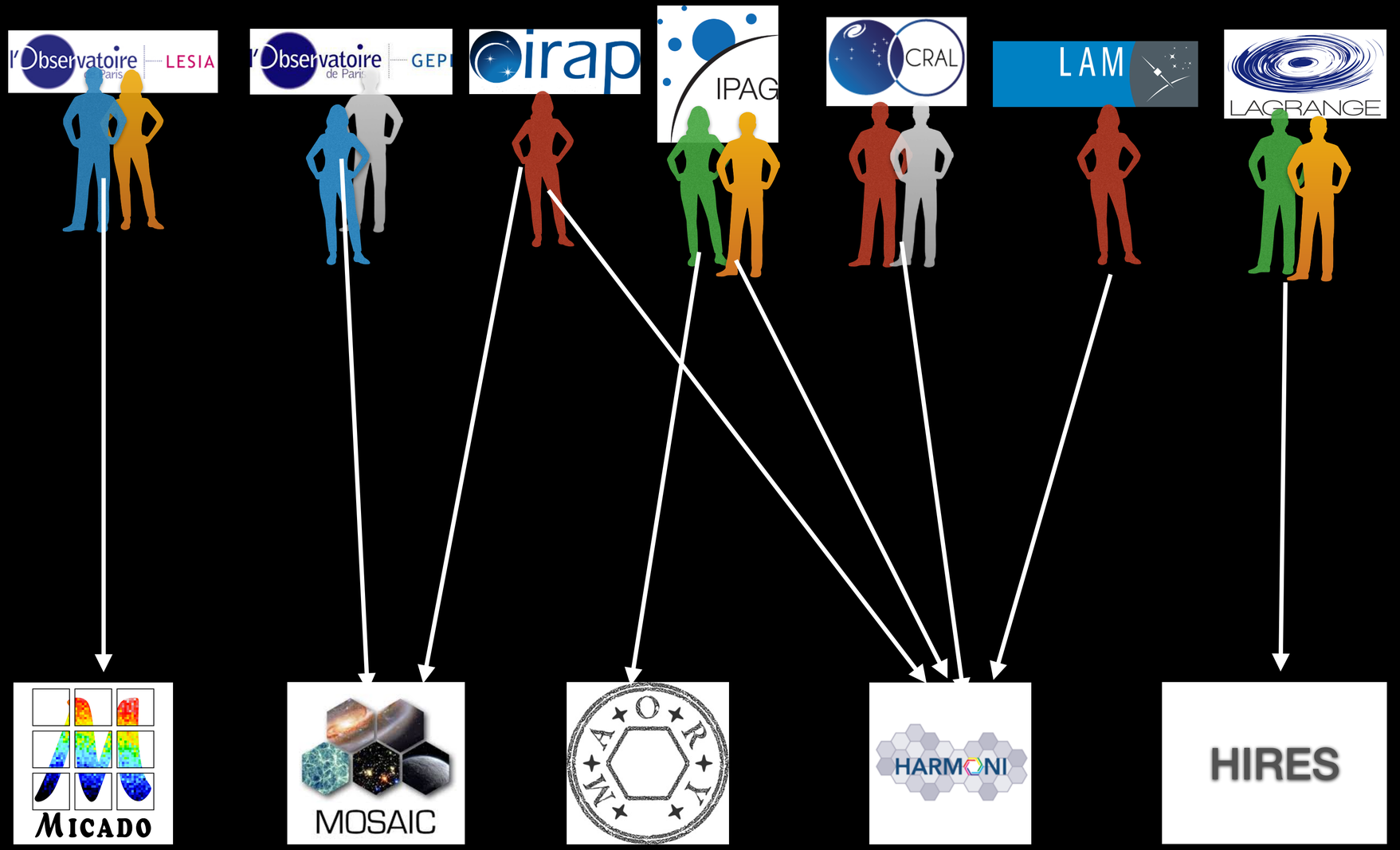
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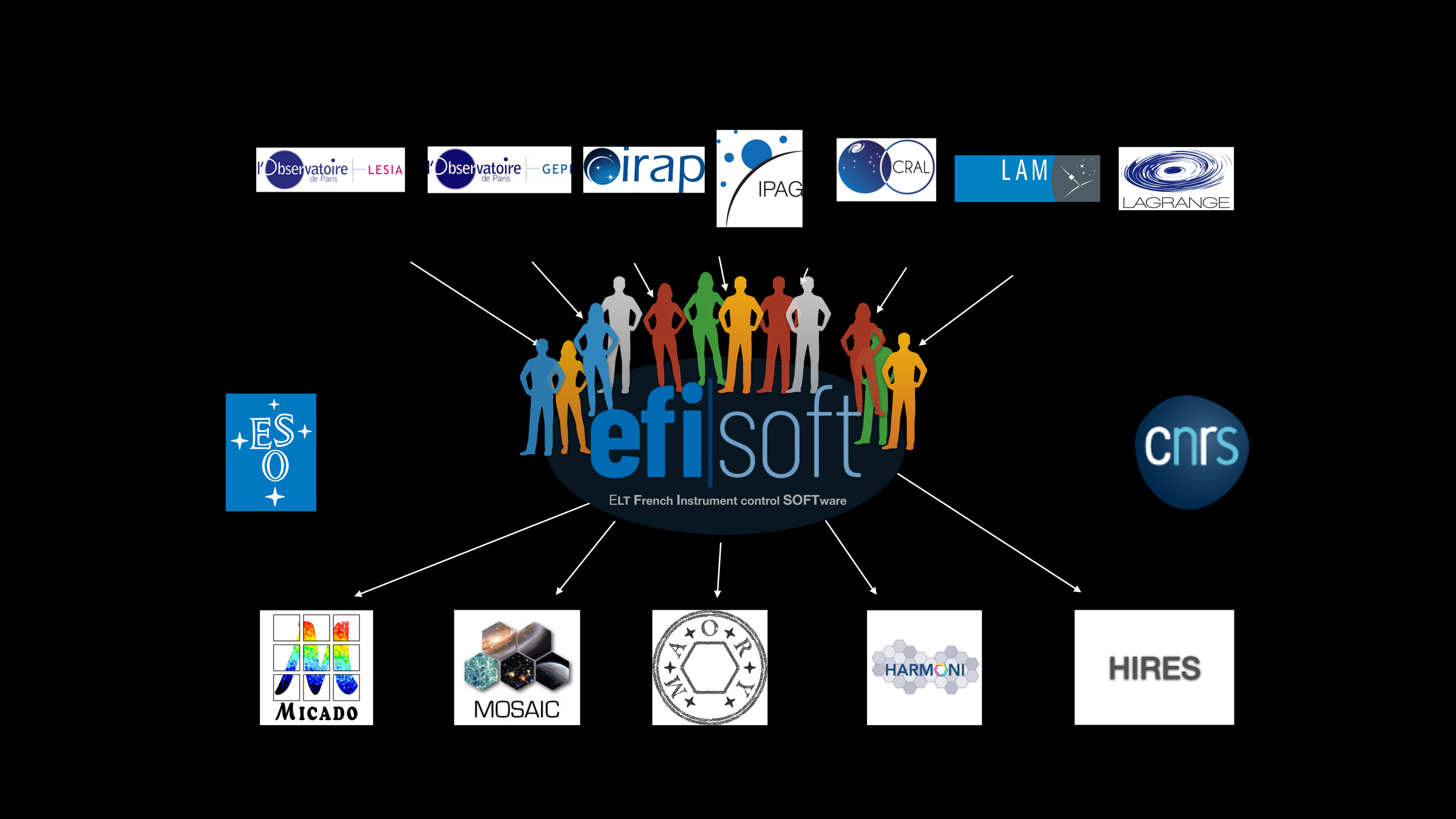
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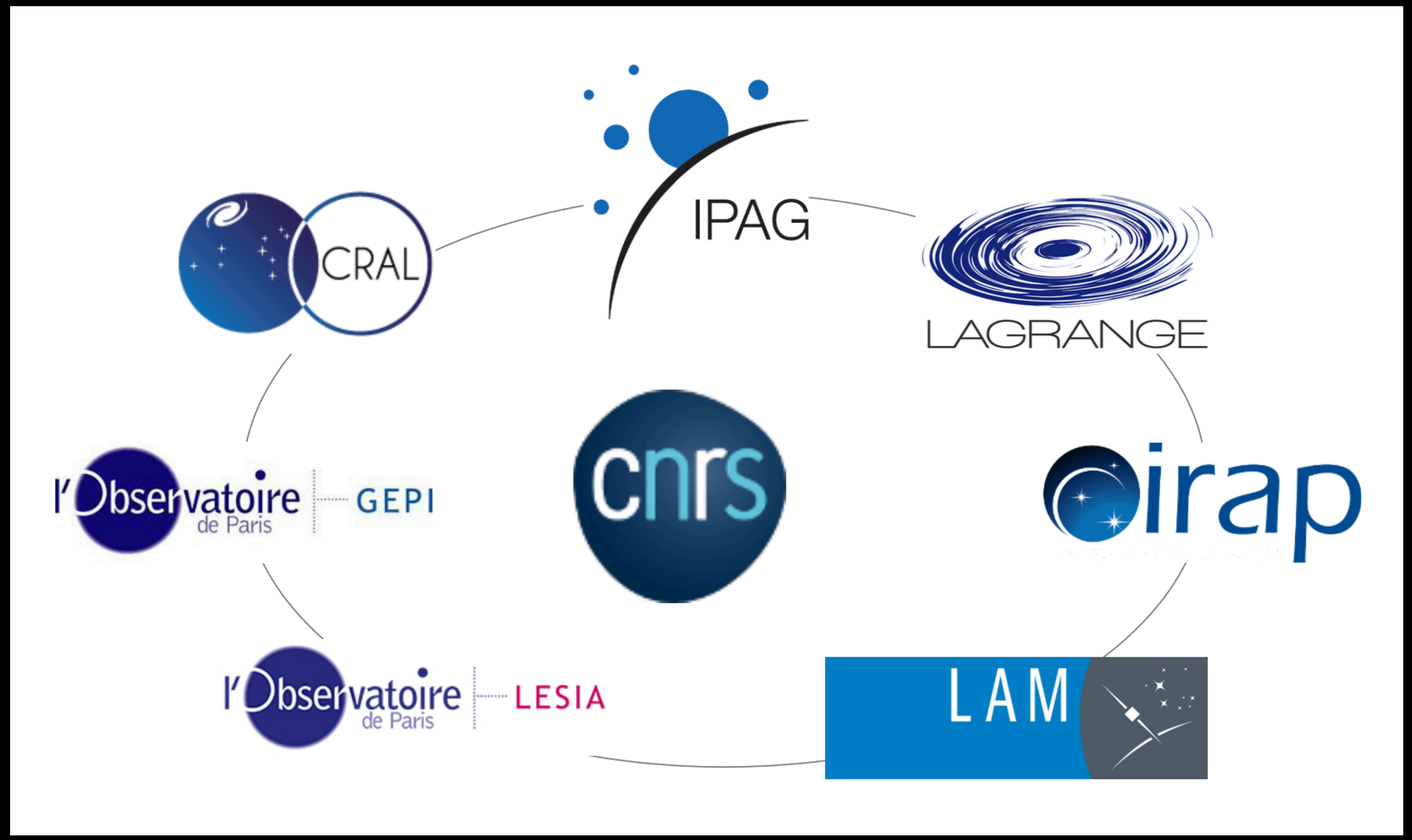
- Initiated by Gerard Zins
- Supported by CNRS-INSU
- 7 french laboratories involved
- Convention signed by affiliated universities
- 17 CNRS engineers involved from 5% (support) to 80% (developers)



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EFISOFT Main Objectives

- **Structuring** the software development efforts
- Deploying **shared** software solutions
- Sustaining **human resources** among laboratories
- **Training** new project staff and **cross training**
- Insuring an **efficient interface** with ESO and instrument consortia

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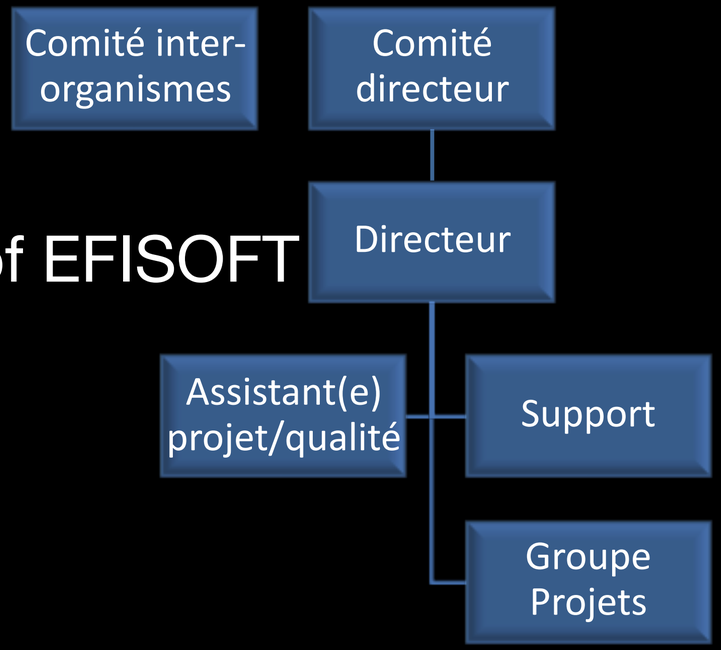
Organism

INSU + Lab directors

Universities



Directorate of EFISOFT

French project investigators and WP managers

EFISOFT Cannot replace a laboratory in project Organisation.

For instance EFISOFT cannot claim telescope time for its contribution only laboratories can.

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Pierre Fedou

Laurence Gluck

Marie Larrieu

Sylvestre Taburet

Daniel Lecron

Bertrand LeRuyet

Fabrice Pancher

Laurence Michaud

Arlette Pecontal

Eric Gendron

Sylvain Rousseau

Yan Fantei-Caujolle

Gilles Fasola

Issa Jaafar

Roderick Dembet

Philippe Ballard

Sylvain Guieu

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On going work

Trainings

- Training organised with Beckhoff with 12 efisoft members
- ELT workshop on ELT software
- Cross-Training, TwinCat Structured Text, TwinCat ESO libraries, python, C++ and other technologies involved in ELT- software

Tools

- Website efisoft.fr
- Redmine
- Gitlab
- Virtual CentOS with ELT-devenv
- PLCs and online PC with Twincat
- Jenkins & test server (Future)

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On going work
Prototyping

- PLC special devices
  - Pick-Off-Arm with non sidereal tracking for HARMONI natural guide star
  - Two axis Modulator for pyramid WFS (SCAO of MICADO, HARMONI)
  - Fast shutter
  - Field Selector with non sidereal tracking and open loop corrections
- Device managers for standard and special devices

On going work
Prototyping

- Motion control
  - Rotator with backlash compensation with two motors
  - PIDs, motors tuning
  - Control of “Piezo walk” devices
- Benches
  - Installation of four benches (PLC, controllers, workstation) for software prototyping and development

On going work

Around Instrument software

- FDR and inter-consortia documentations
- Building device lists, instrument dictionaries
- Building software repositories, development and quality process
- Expertise on electronics part according to ESO software standard I/O
- Frequent discussions with ESO and within consortia
- AIT tools, e.g. “pydevmgr” a light device manager for non-software experts and for AIT experiments.

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Difficulties And leçon learned (2019-2020) as director of EFISOFT

- Being recognised by international consortia and ESO takes energy and time. Contrary to labs and individuals EFISOFT has no history in building instrument software
- Breaking completely people Lab and Instrument affiliation is hard, not a good idea and not wanted anymore
- Maintain team motivation in current phase (post PDR, pre-FDR) across projects

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What does work well (2019-2020)

- Having a centralised knowledge on what we need to do and who did what allows to avoid development duplicates and allows to bring people together for specific tasks or trainings
- The diversity of expert's experience and specialities from soft/electronic interface up to astronomer specifications
- Valorisation of VLT software experiences
- Great relationship with ESO and consortia
- EFISOFT is a support for new engineer employment (partial or full-time)
- Trust and easy exchange in between EFISOFT members