

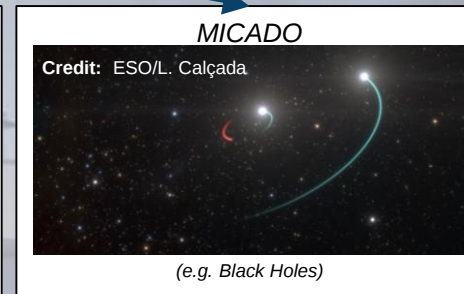
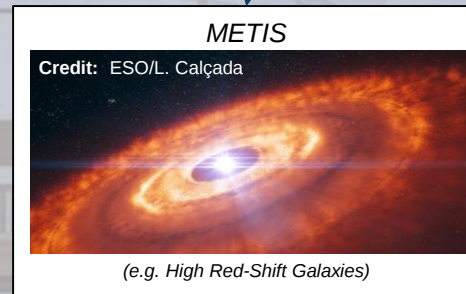
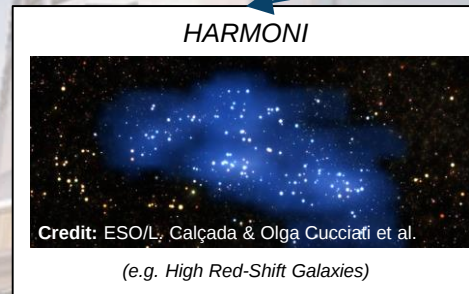
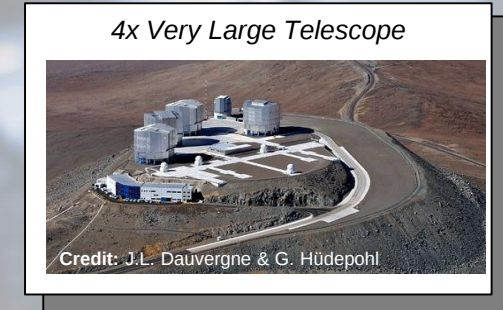
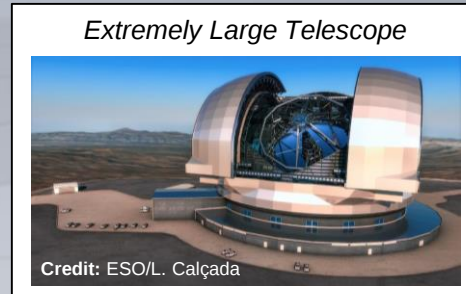


NGCII: ELT instrumentation procurement webinar 1 October 2025



Extremely Large Telescope - Instrumentation Procurement

NGCII Detector Controller for ELT/VLT/VST



8 Detectors

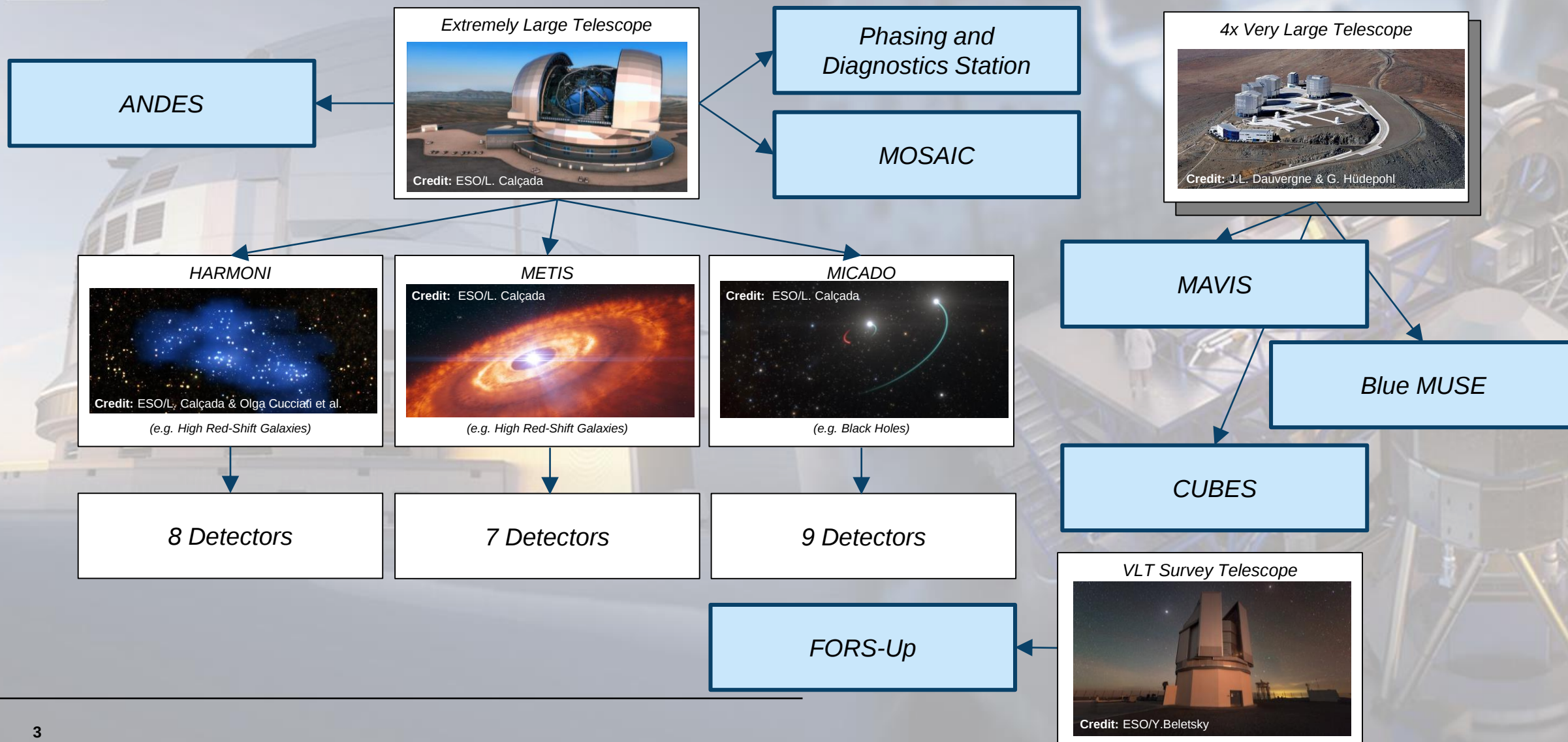
7 Detectors

9 Detectors



Extremely Large Telescope - Instrumentation Procurement

NGCII Detector Controller for ELT/VLT/VST

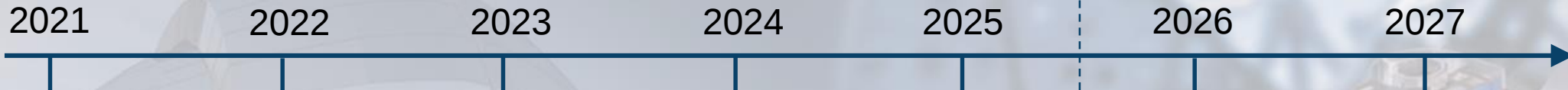




Extremely Large Telescope - Instrumentation Procurement

Simplified Timeline for Detector Support

Today



CMOS

HAWAII-2RG
HAWAII-4RG
SAPHIRA

Rev.1
Prototype

First Light

Rev.2
Prototype

MRR

Rev.3
Pre-Series

Series

CCD

CCD231
CCD290

Rev.1
Prototype

First Light

Rev.2
Prototype

MRR

Rev.3
Pre-Series

Series

-  TecDev Development
-  DoE Production

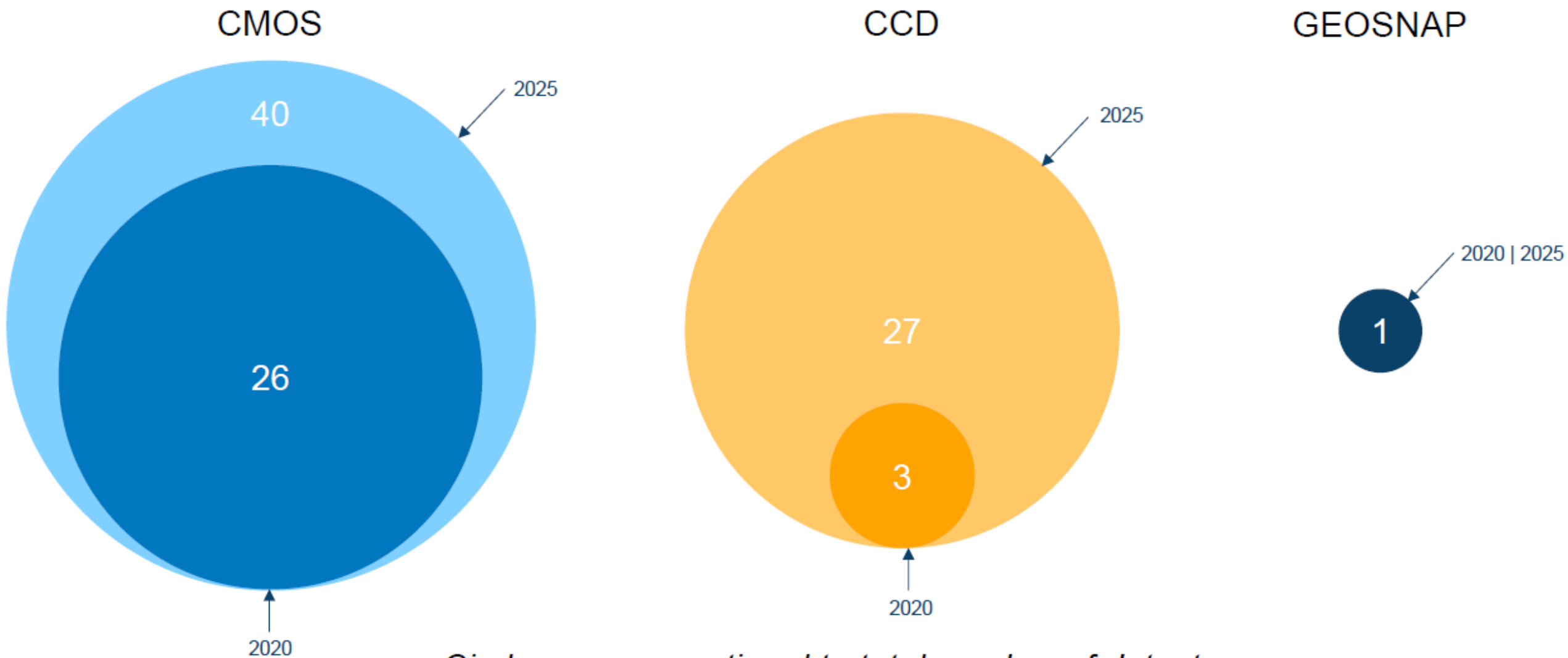
- Rev1:** 1 prototype system
- Rev2:** 1-3 test systems
- Rev3:** ~5 systems externally manufactured and tested
- Series:** Sufficient to meet all demand

Production planned until 2035 !



Scope

Extremely Large Telescope - Instrumentation Procurement



Circle area proportional to total number of detectors



IOXOS IFC1414
New Board for ESO
Zynq US+ FPGA
PROTOTYPE



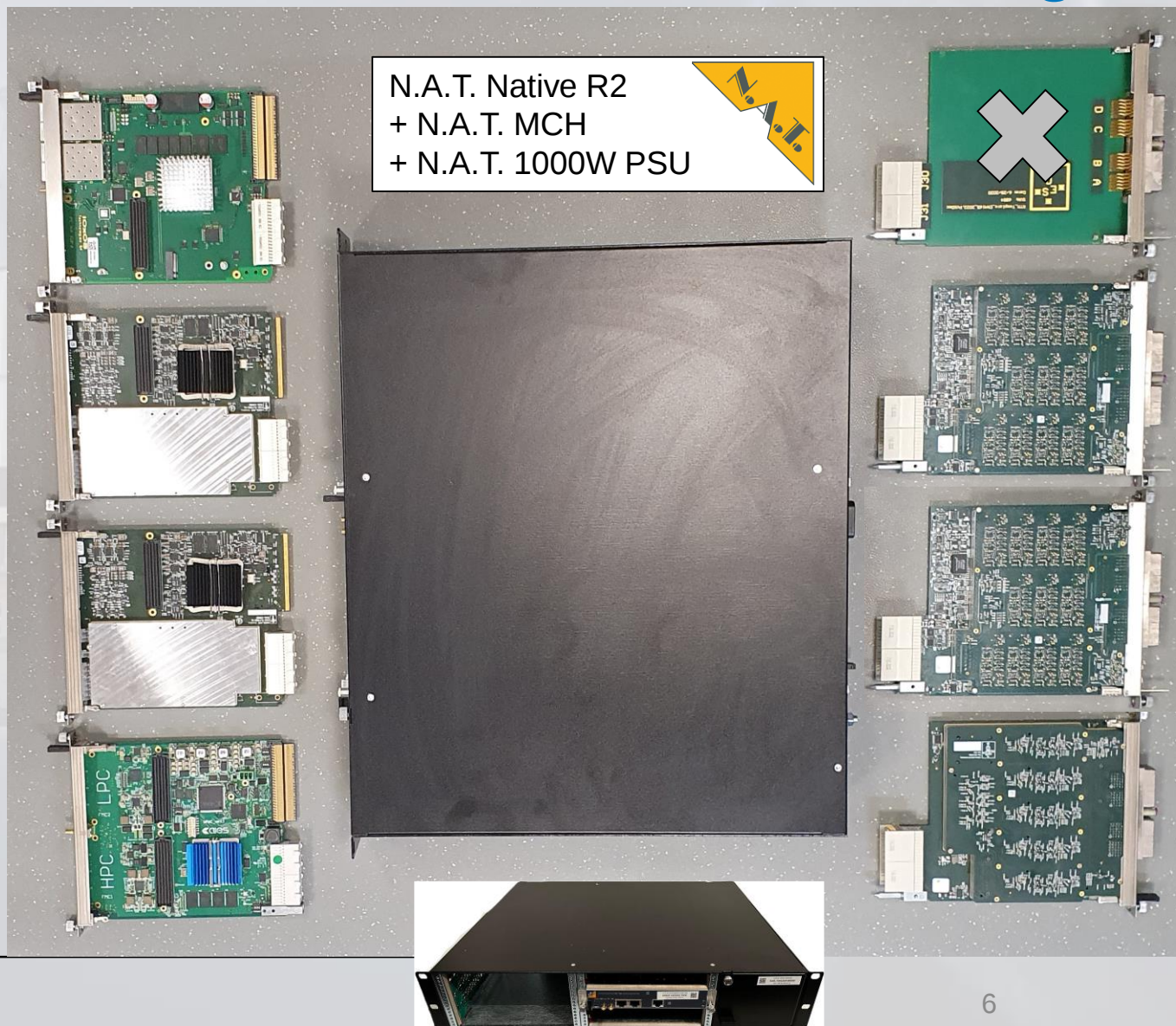
2x AQ22 AMC
ADC Module
Artix FPGA
In-house Dev.



AIES MFMC
Artix FPGA

Extremely Large Telescope - Instrumentation Procurement

NGCII Detector Controller CMOS Configuration



APD Bias RTM
Negative APD Bias



2x CMOS AQ22 RTM
Signal Conditioning
In-house Development



CMOS C20B20 RTM
Clock + DC Bias
In-house Development

Supply Chain / Frame contracts

■ Several frame contracts in place, with limited duration:

- Working stations / Computer (DELL, managed by ESO IT)
- Switches (CISCO, managed by ESO IT)
- CMOS modules: CAD Services (2026)
- CCD Modules: Exatronic (2026)
- Prototype / common CMOS CCD modules: Teydisa (2026)

■ Many suppliers for direct procurement:

- RS Components GmbH
- Farnell GmbH
- DIGI-KEY Electronics
- Mouser Electronics, Inc. Munich Office
- Würth Elektronik GmbH & Co. KG
- NTT Germany AG & Co. KG
- Beckhoff

■ Licences

- PICMG, Cisco, Xilinx, Riviera-PRO, Mathcad

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Challenges

- ❑ COTS products
- ❑ OEM / Customized products
 - Supplier involved in the design
 - Tests / Calibration services included
 - Product assurance / Norms / Safety
- ❑ Small-medium series
- ❑ Obsolescence management



Thank you!

Please send questions to :

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<sramsay@eso.org>

Technology development: Samuel Lévêque
<sleveque@eso.org>



@ESO Astronomy



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