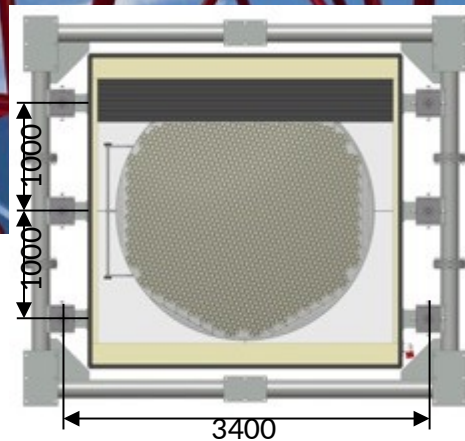
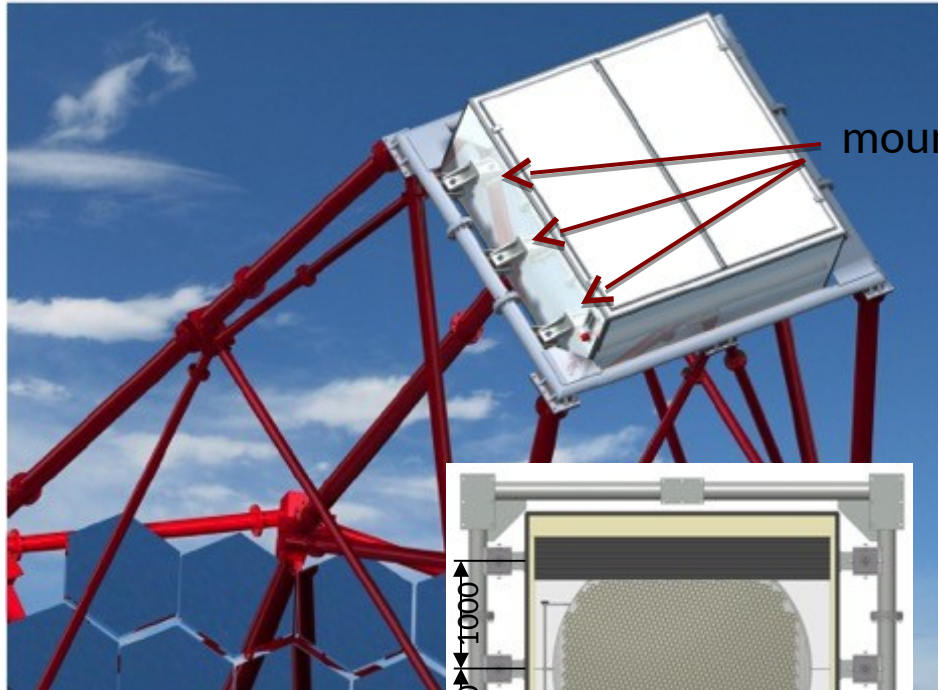


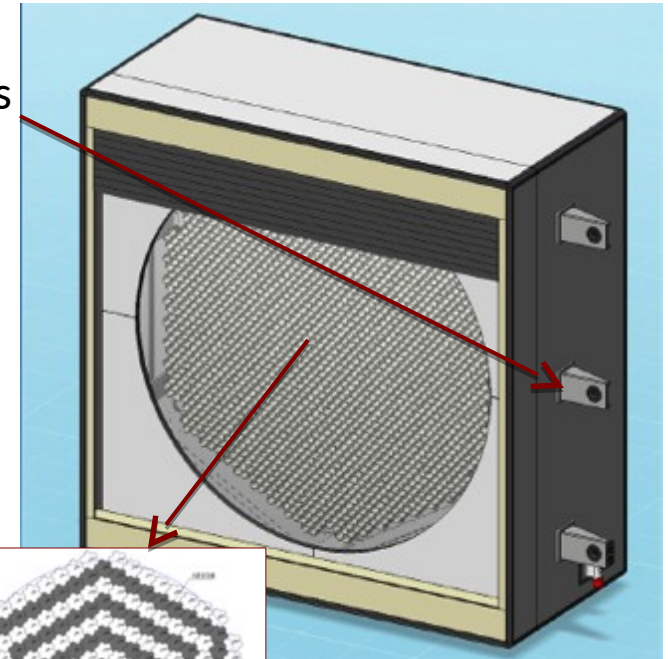


Point d'info NectarCam





- Poids: 1. 93 tons
- Dimensions: 2.8 x 2.9 x 1.15 m
- Champ de vue : 8°



- Détecteurs :
- 1855 pixels
 - 265 modules



Consortium NectarCAM



Objectif : construire des caméras pour les télescopes MST de CTA

15 instituts dans 3 pays (France, Spain, Germany)

~50 membres actifs

Groupes de travail:

Focal plane instrumentation: IPAG (Grenoble), IRAP (Toulouse), ICC-UB (Barcelona)

Cooling and Mechanics: CIEMAT (Madrid), IRFU (Saclay), **LLR (Palaiseau)**

Readout and digitization: LPNHE (Paris), IRFU (Saclay), ICC-UB (Barcelona)

Local trigger: ICC-UB, IFAE (Barcelona), CIEMAT (Madrid), UCM-GAE (Madrid), DESY (Zeuthen)

Global trigger/clock: UCM-GAE (Madrid), APC (Paris), DESY (Zeuthen)

Data acquisition, event builder: CPPM (Marseille), LUPM (Montpellier)

Control, safety, services: LAPP (Annecy), IFAE (Barcelona), LLR (Palaiseau)

Calibration: **LLR (Palaiseau)**, LUPM (Montpellier), IPNO (Orsay)

Management, Systems Engineering, Product Assurance: IRFU (Saclay), LAPP (Annecy),

LLR (Palaiseau), APC (Paris), IRAP (Toulouse)

Integration: IRFU (Saclay)

Organisation

Product assurance manager
 Sandrine Pavy, LLR - WBS: 3.7.4.11.1

QA/QC manager
 Sandrine Pavy, LLR - WBS: 3.7.4.11.2

KAMIS manager
 Stéphane Colonges, APC - WBS: 3.7.4.11.3

Documentation manager
 Pascale Ramon, IRAP - WBS: 3.7.4.11.4

Product assurance team

Scientific coordinator
 Jean-François Glicenstein, IRFU
 WBS: 3.7.4.9.2

Project manager
 Michel Fesquet, IRFU
 WBS: 3.7.4.9.1

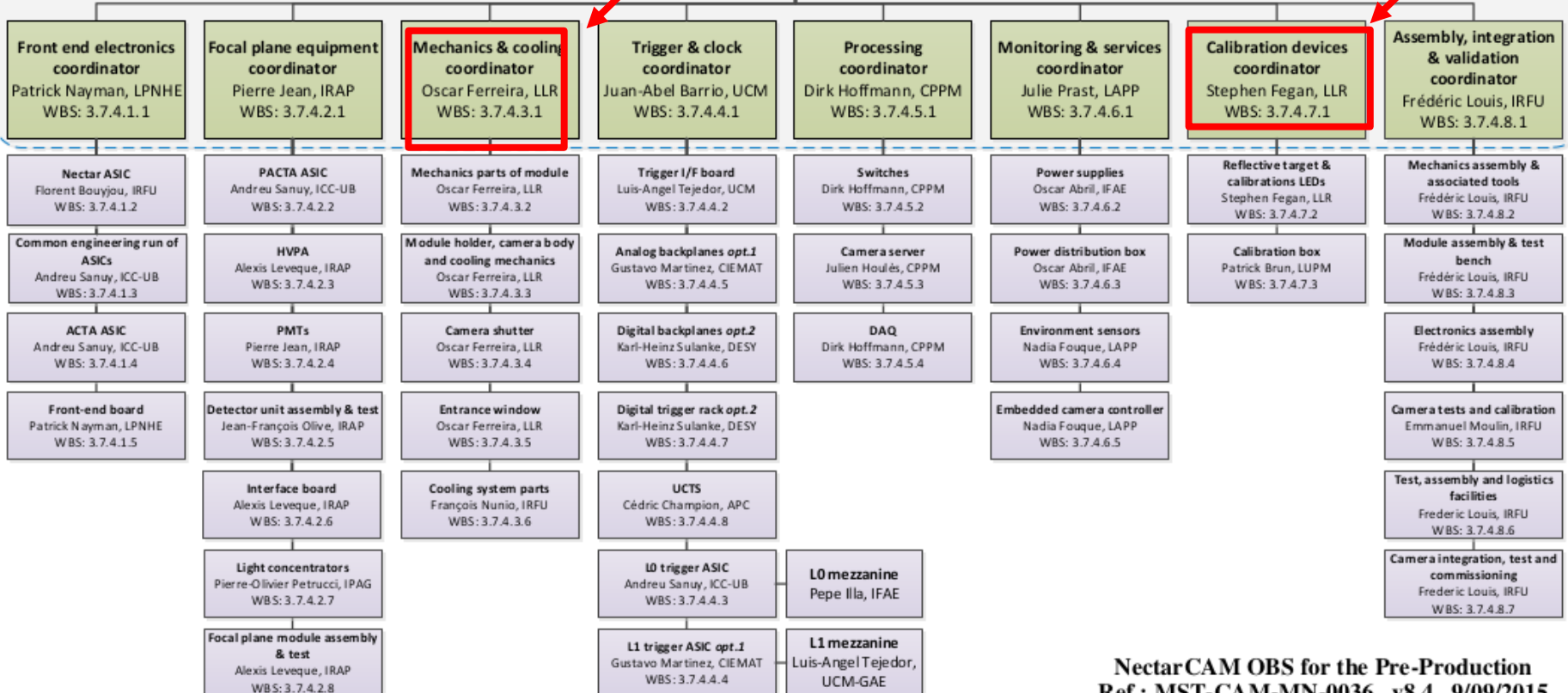
Systems engineer
 Julie Prast, LAPP - WBS: 3.7.4.10.1

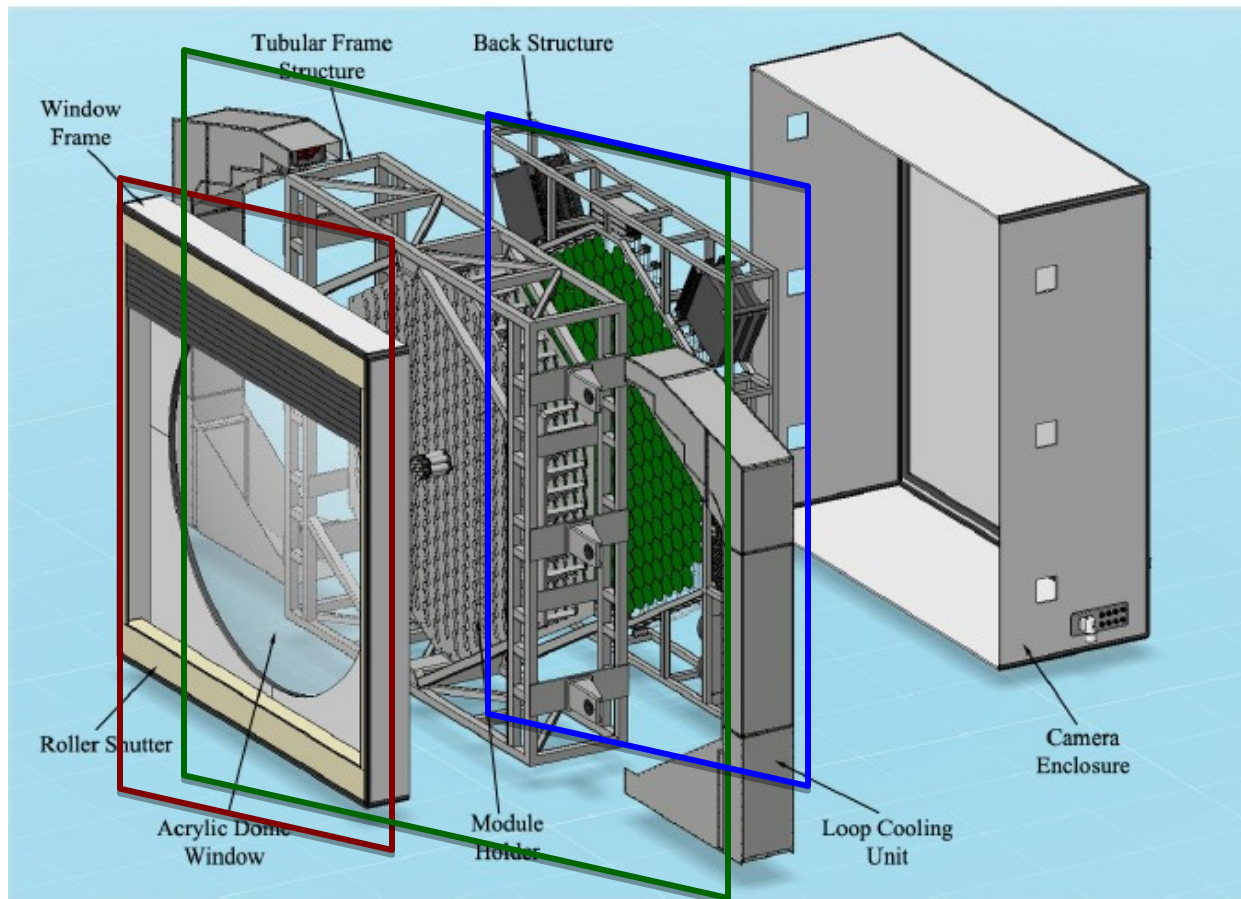
Electrical & data architect
 Julie Prast, LAPP - WBS: 3.7.4.10.2

Mechanics architect
 Oscar Ferreira, LLR - WBS: 3.7.4.10.3

Control software architect
 Patrick Sizun, IRFU - WBS: 3.7.4.10.4

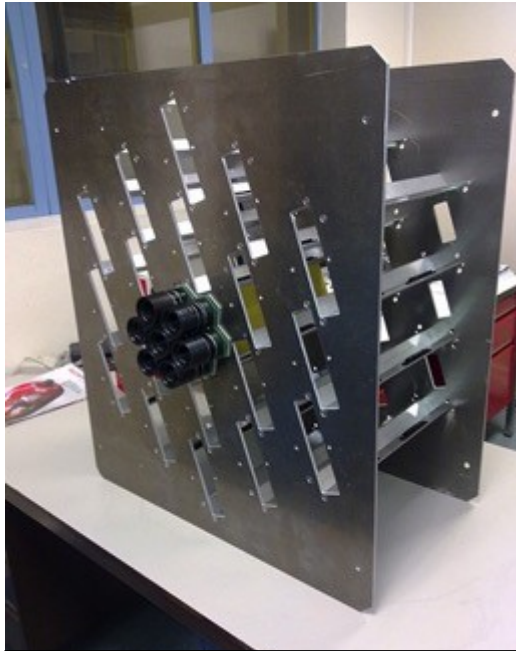
Systems team





- **Partie avant:** rideau, plaque optique de fermeture
- **Partie centrale:** data capture, trigger
- **Partie arrière:** trigger(2), DAQ switches, power distribution, clock distribution

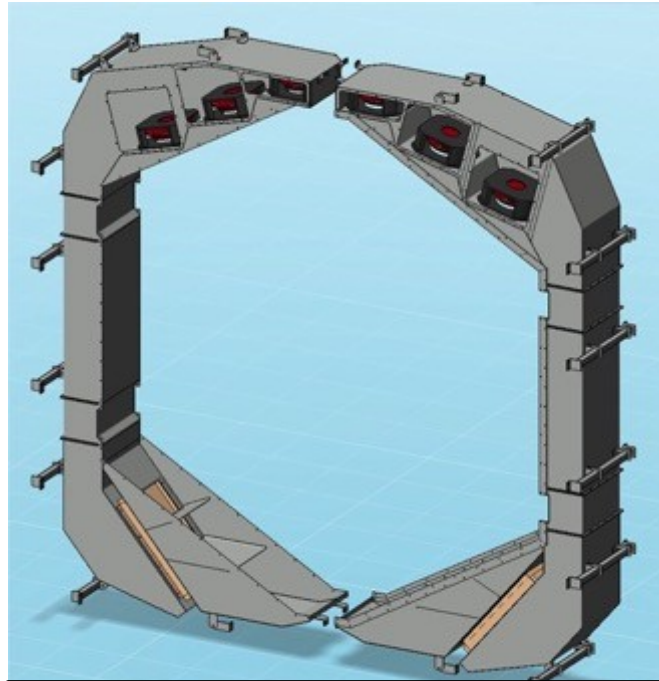
Développements communs NectarCAM Team



Mini Module Holder

Mechanical Structure for the 19 module demonstrator

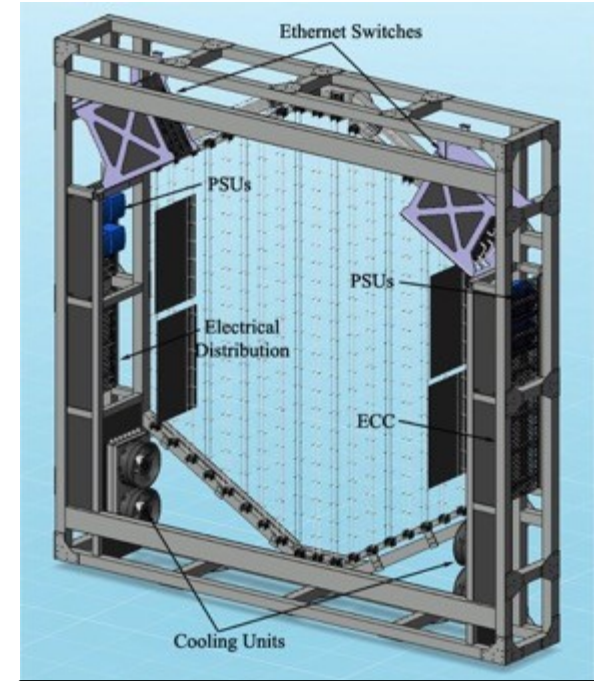
- Shared development between CIEMAT and LLR
- 2 Units produced, ready to receive modules



Cooling Units

Cooling Units for LST 1 and NectarCAM QM

- Design is done
- Procurements ongoing for both mechanical structure and components



Camera Back Part

Prototype of camera back part to check integration and cabling

- Design is done
- Fabrication starting in September
- Goal to validate integration by the end of the year

CIDL required in CTA quality plan

3.6 Specific documentation for Hardware products (deliverables)

Chapter	Type of documents
3.1.1	Technical Specifications
3.1.4	Functional specifications
3.1.2	Technical Design Report
3.1.4	Detailed design
3.1.4	List of the components
3.1.4	Assembly and test procedures
3.1.5	Interface Control Document (ICD)
3.2.2	Procurement specifications
3.3.2	Incoming inspection report
3.3.4	Logbook and traveller sheet
3.3.5	Test specification/plan
3.3.5	Test procedure
3.4.1	Packaging, handling and transport procedures
3.4.2	Delivery inspection report
5.3	Non-Conformance Report (NCR)
6.4.1	Auditing report

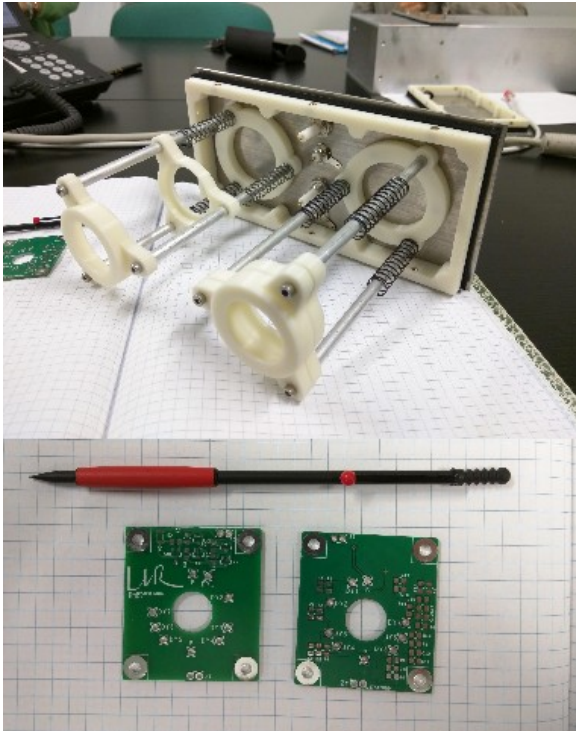
Table 3: example of specific documentation for hardware products.

4.6 Specific documentation for SW products

Chapter	Type of documents
4	Management Plan: proposed life cycle, QA rules, schedule, meetings and key personnel
4.1	Design documentation (with SW req's and architecture)
4.2	Source codes
	Interface Control Document (ICD, for external and if applicable internal interfaces)
4.3	Verification plan: description of the tests to check the correct implementation of the design
4.3	Test reports, summarizing the results of each test in the Verification Plan
	User Manual: description of the SW, use cases, troubleshooting and description of error/warning messages,
4.4	Maintenance reports: listing known anomalies along with their status, as well as relevant metrics (error sources, time to solve, etc.)
6.4.1	Auditing report

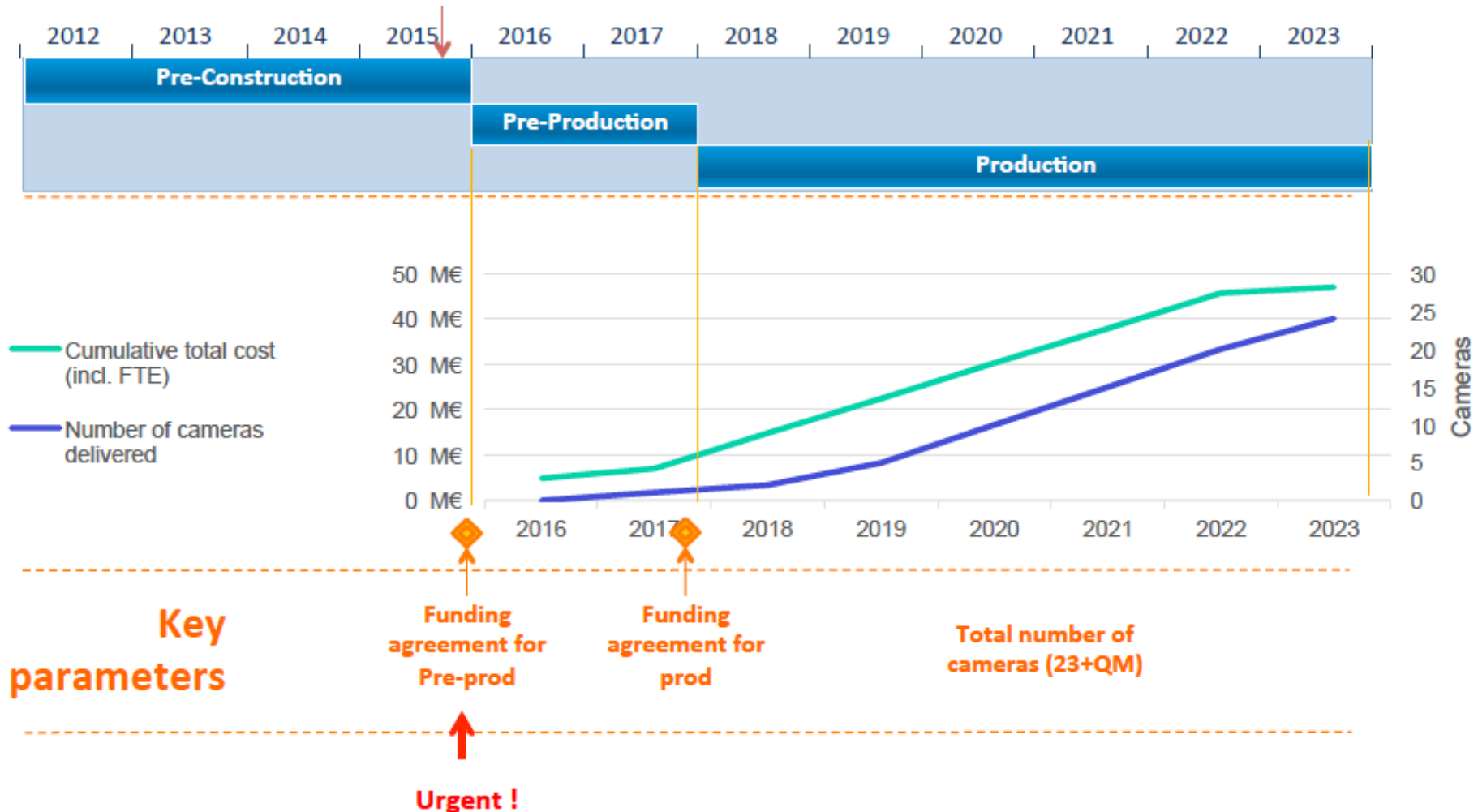
Table 3: example of specific documentation for software products.

Calibrages



- Dispositif de caractérisation du gain des PMT R12992-100 (7-dynodes) dans les conditions nominales d'opération des MST.
- Etude de faisabilité du calibrage des PMT dans une caméra NectarCam via une illumination interne.





- Mises a jour du WBS (couts et ETPT) pour tenir compte d'évolutions de design
- Preparation d'un accord de consortium NectarCAM pour la pré-production.

- Départ de S. Rateau, compensé à court terme par des contributions de R. Cornat et F. Magniette
 - compétences instrumentation, électronique, mesures
 - implication à renforcer pour préproduction/production!
- Contributions mécaniques importantes attendues bientôt
 - modules de refroidissement, 19-M, pré-prod (QM)
- Perte de visibilité dans le WG Science après des contributions passées importantes (AGN, Survey,..)
 - **recrutement CR ardemment souhaité (même si...)**
- AP 2016 très certainement insuffisants pour MQ
 - projet CANEVAS Labex P2IO
- Attente décision DGAR pour espace dédié