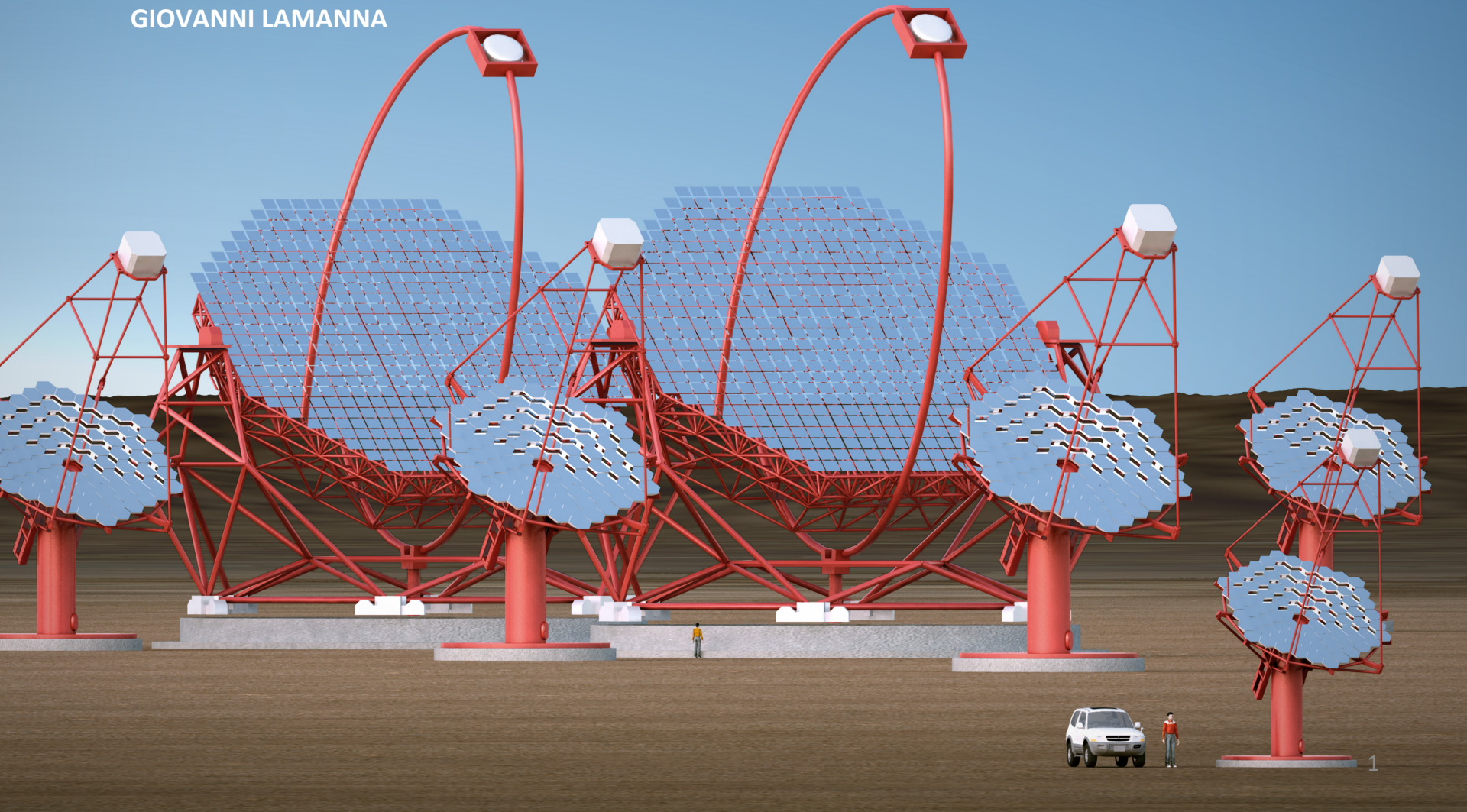
ASTERICS kick-off meeting, 26 May 2015

CTA

GIOVANNI LAMANNA



Introduction

VHE gamma-ray astronomy with CTA is evolving towards the model of a public observatory where guest observers will submit observation proposals and have access to the corresponding data, software for scientific analysis and support services.

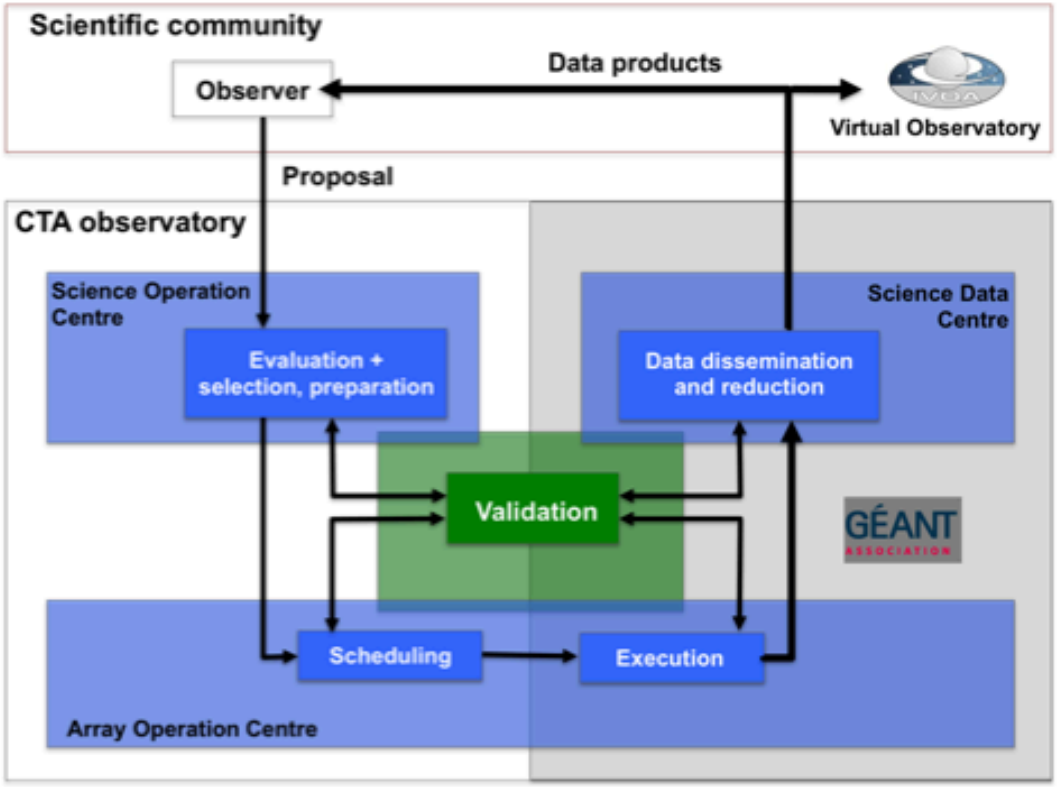


Figure 1.1 – Logical diagram of the CTA Observatory functional Units.

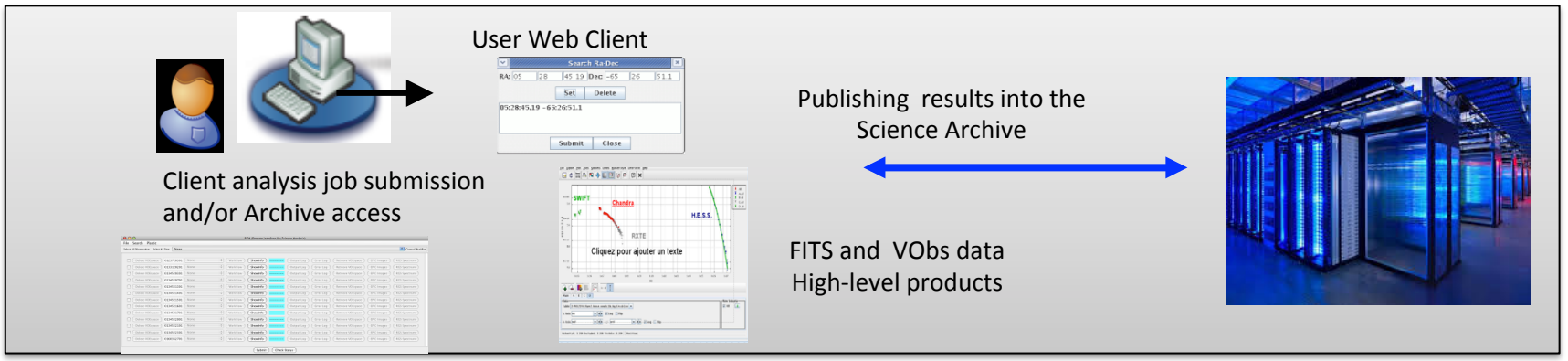
Main challenges

Distant antennas and a worldwide community:

reliable high-bandwidth intercontinental connection

Data rate, tens PB/year: challenges for streaming, on-site processing, archive, multithread pipelines processing, and long term sustainability

Open access to Observatory data for a worldwide community: a “Scientific Analysis System” integrating together Data Centre, Archive, Software and e-infrastructures



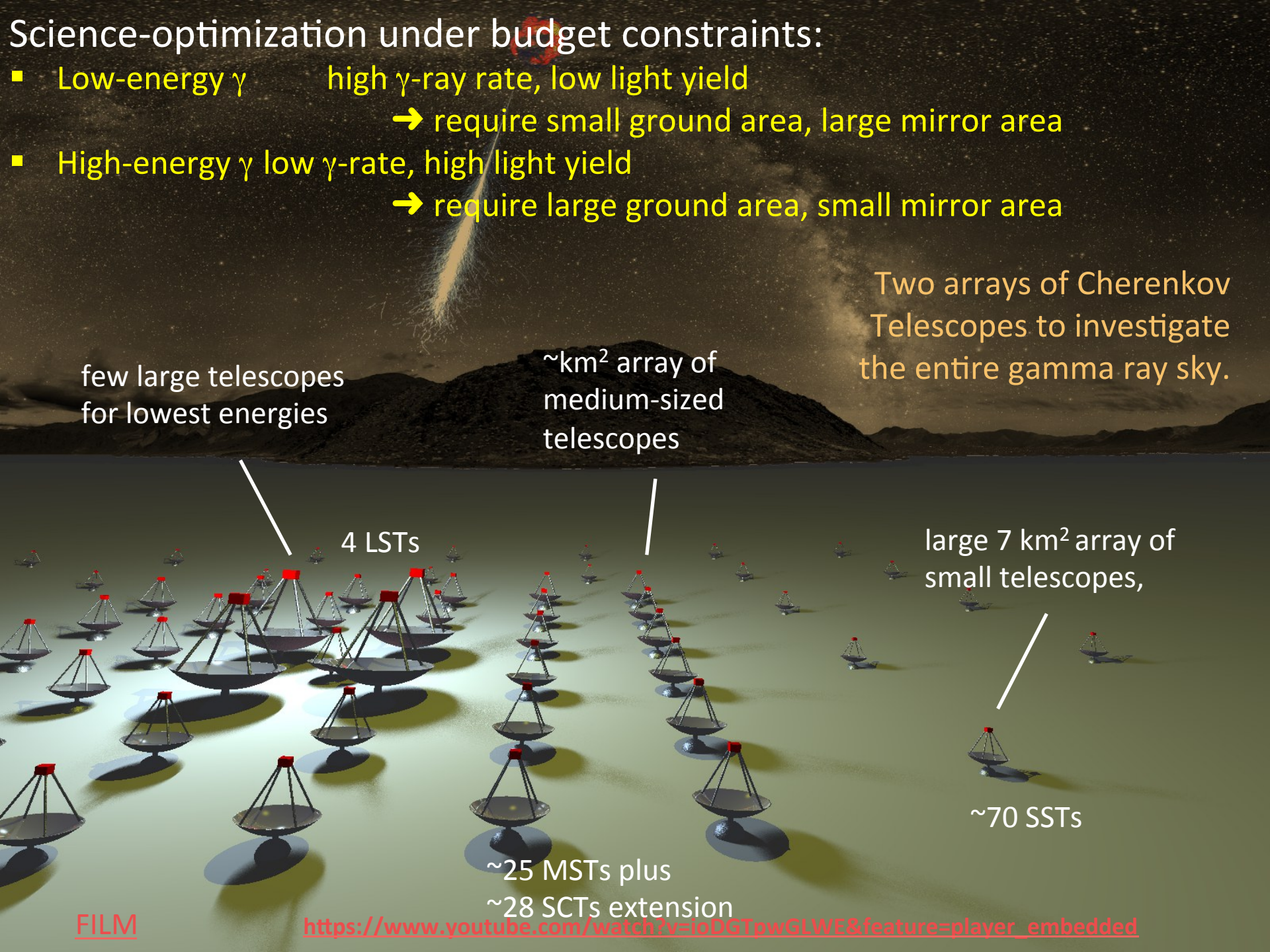
CTA consortium

1200 members
200 institutes
31 countries
5 continents

Science-optimization under budget constraints:

- Low-energy γ high γ-ray rate, low light yield
  ➜ require small ground area, large mirror area
- High-energy γ low γ-rate, high light yield
  ➜ require large ground area, small mirror area

Two arrays of Cherenkov Telescopes to investigate the entire gamma ray sky.



FILM https://www.youtube.com/watch?v=ioDGTpwGLWE&feature=player_embedded

BASED ON KNOWN TECHNOLOGY.

PRECURSORS:

MAGIC and HESS

The High Energy Stereoscopic System Cherenkov telescopes (H.E.S.S.)

CTA view on ASTERICS

1. ASTERICS represents an important framework for cross-fertilisations among world-class projects, and for scientific synergies.

2. CTA funding agencies support the ASTERICS actions aimed at fostering cooperation with all relevant organizations, outreach and e-infrastructures.

3. The data challenges proposed in OBELICS WP3 and DADI WP4 are coherent with some of the key issues explored in the CTA Data Management project.

4. Opportunity for CTA to secure the Virtual Observatory developments for the future "data dissemination challenges" of the CTA Observatory. (True also for running Cherenkov "precursors": H.E.S.S. and MAGIC).

5. The CTA Data Management project key representatives have a leading role in ASTERICS contributing to the needs of a larger scientific community.

6. Some technological challenges (e.g. scheduling and synchronization) in CLEOPATRA WP5 are also part of the CTA Array Control project.