A photograph of the Very Large Telescope (VST) at the Capodimonte Astronomical Observatory in Naples, Italy. The telescope's large corrugated metal doors are open, revealing the internal structure. The sky is dark with many stars, and a faint aurora borealis is visible on the left. A tall metal tower is on the left, and a blue door is at the bottom of the telescope structure.

# VST in the era of the large sky surveys

**P. Schipani**

**INAF**

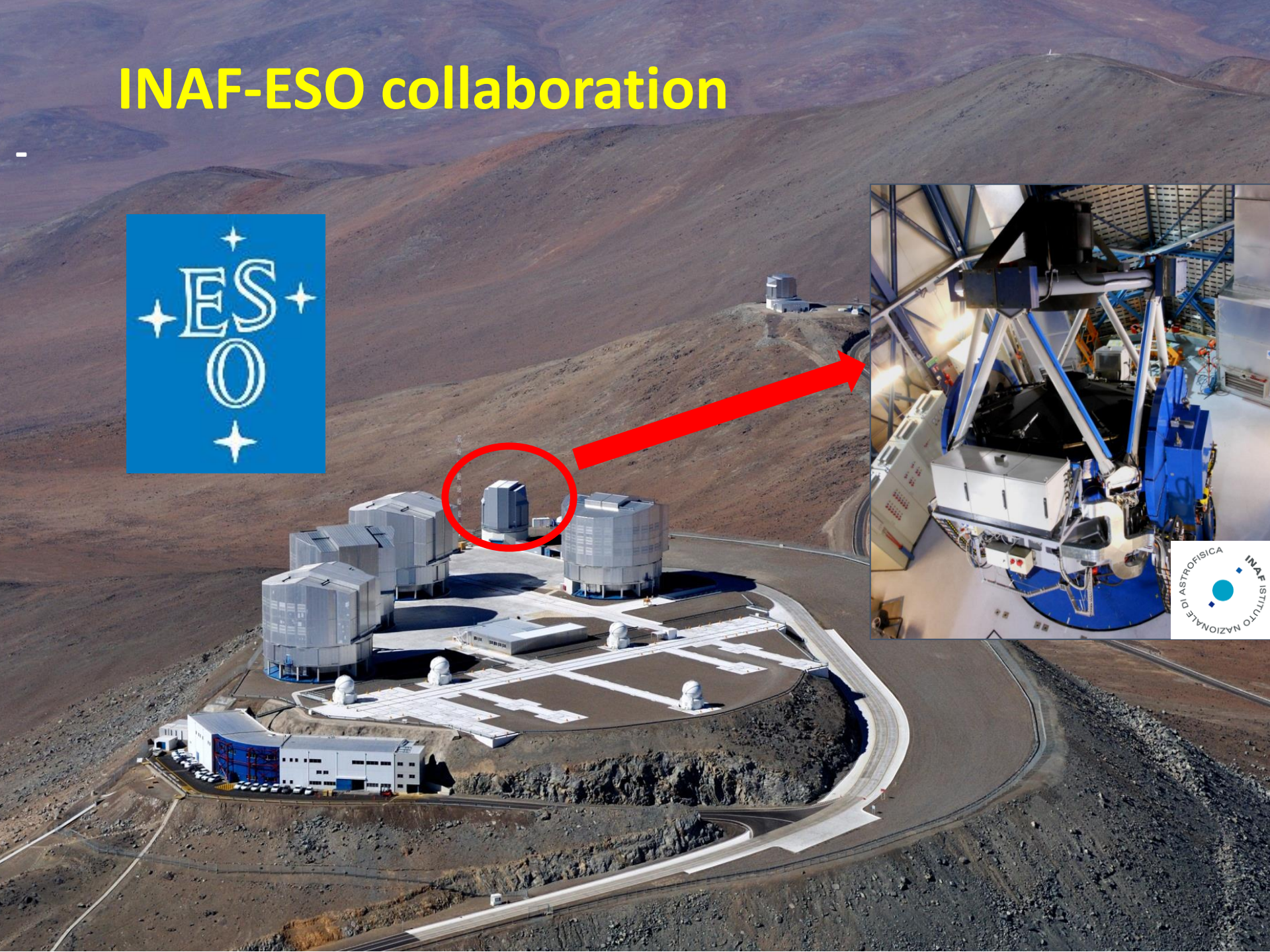
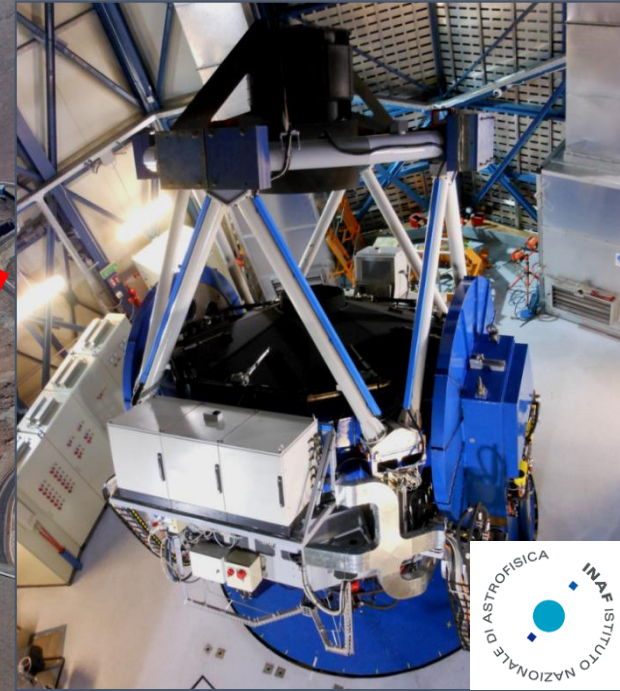
**Capodimonte Astronomical Observatory, Naples, 5-8 June 2018**

# Why the Conference



- ❑ Review of the ongoing science
- ❑ 1st step for planning the future
  
- More than 50 talks in the program
- Past, current, future programs
- Scientific ideas
- Instrumental proposals
- Scientific synergies
- Other projects

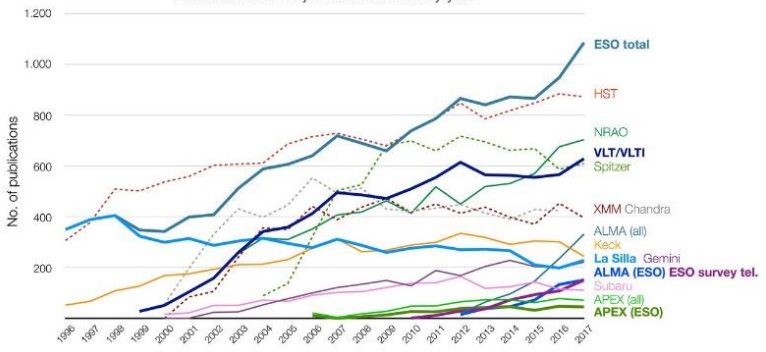
# INAF-ESO collaboration



- Instruments built by ESO
- Instruments built by Ext. Cons. + ESO
- Instruments built by Ext. Cons. + ESO with INAF participation
- Telescopes built by ESO
- **Telescopes built by Ext. Cons.**



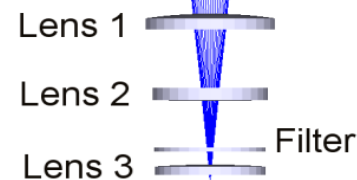
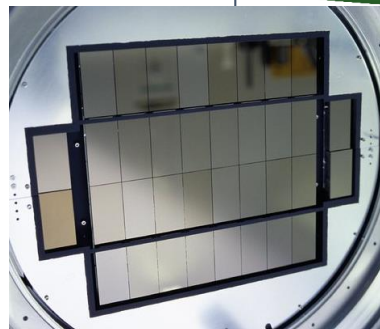
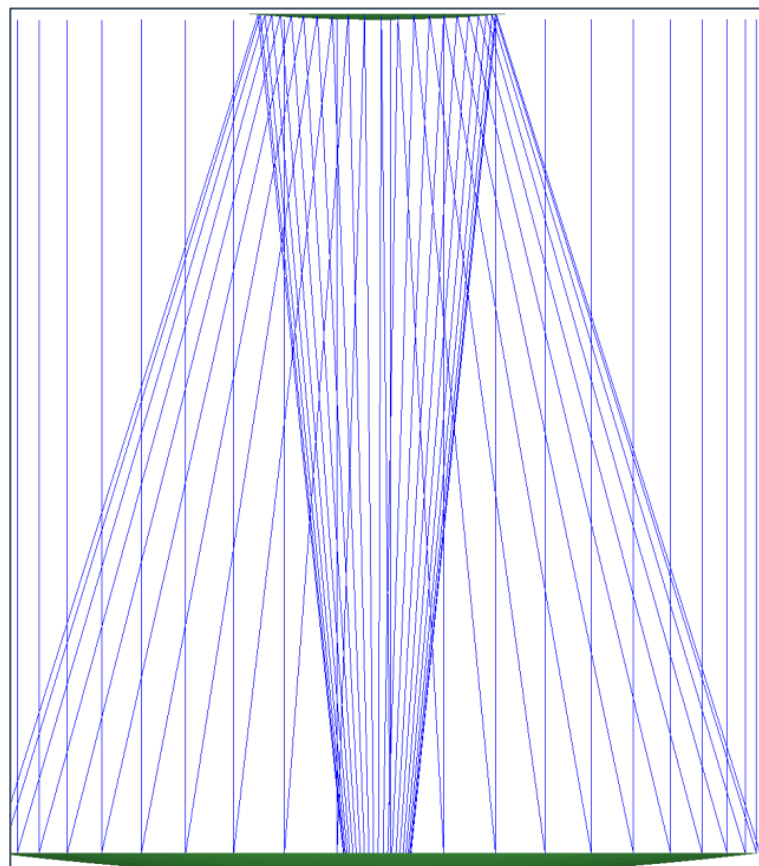
Publications of major observatories by year



VST in the era of the large sky surveys, Naples, 5-8 June 2018

# Characteristics

- Modified RC
- Primary mirror: 2.6m
- Secondary mirror: 0.9m
- F# 5.5
- Field corrector with 3 lenses (2 in the telescope + 1 in the camera)
- Field:  $1^\circ \times 1^\circ$
- Active Optics
- Curvature Wavefront Sensor with in- and out-focus CCDs Active M1 shape control (81 active axial support + 3 axial fixed points)
- Active M2 positioning in 5 dof (hexapod)
- Guiding & Wavefront sensing through the OmegaCAM camera
- Image Quality down to 0.45'' FWHM across whole field – Very good
- Unused probe & ADC



## **Unusual: owned by INAF, operated by ESO**

- Underwent regular ESO project steps (PDR, FDR, PAE, PAC, FAC)
- Totally integrated within the ESO environment
- But: INAF's property
- Regulated by decadal agreement ESO-INAF
- Available to community since 15 October 2011
- FAC granted 2014

### **AGREEMENT**

**on the GUARANTEED OBSERVING TIME, the LOAN and the  
OPERATION of the 2.6-m VLT SURVEY TELESCOPE  
(hereinafter referred to as VST)  
at the ESO Paranal site of the La Silla Paranal Observatory  
(Chile)**

### **BETWEEN**

the **European Organisation for Astronomical Research in the Southern Hemisphere**, hereinafter referred to as **ESO**, having its Headquarters at Karl-Schwarzschild Str. 2, D-85748 Garching bei München (Germany),

on the one hand,

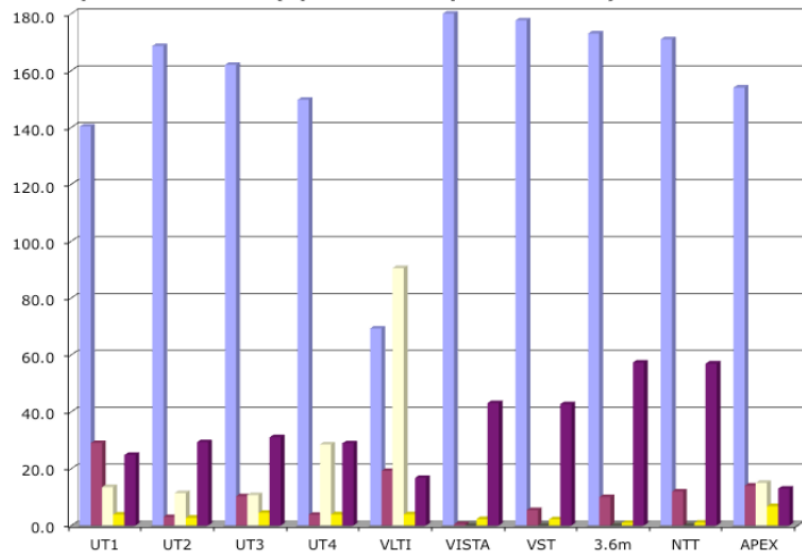
### **AND**

the **Istituto Nazionale de Astrofisica**, hereinafter referred to as **INAF**, whose registered address is at Viale del Parco Mellini n.84 - 00136 Roma (Italy).

# ESO LPO Statistics



Telescope Statistics P97 (April 2016 - September 2016)

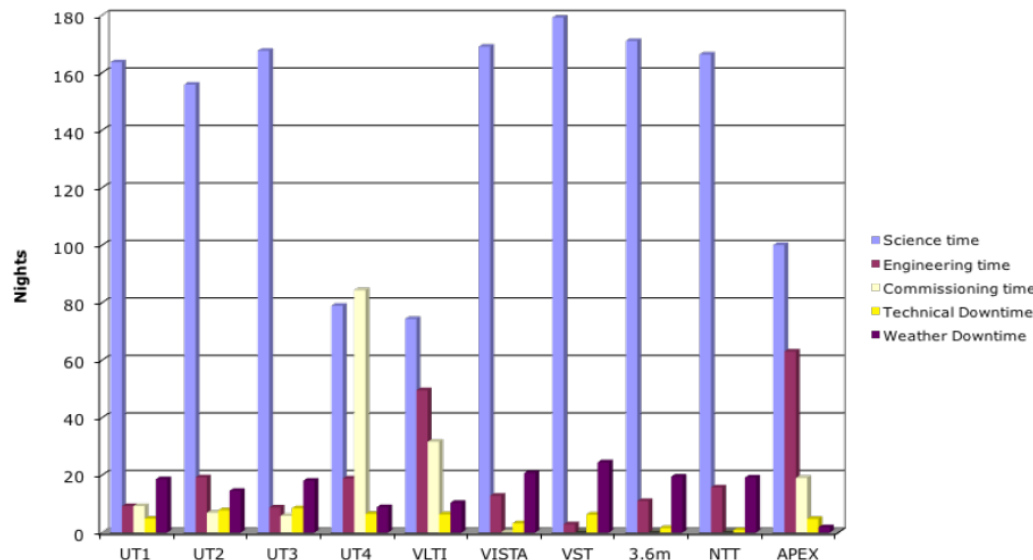


**P97**

**P98**



Telescope Statistics P98 (October 2016 - March 2017)

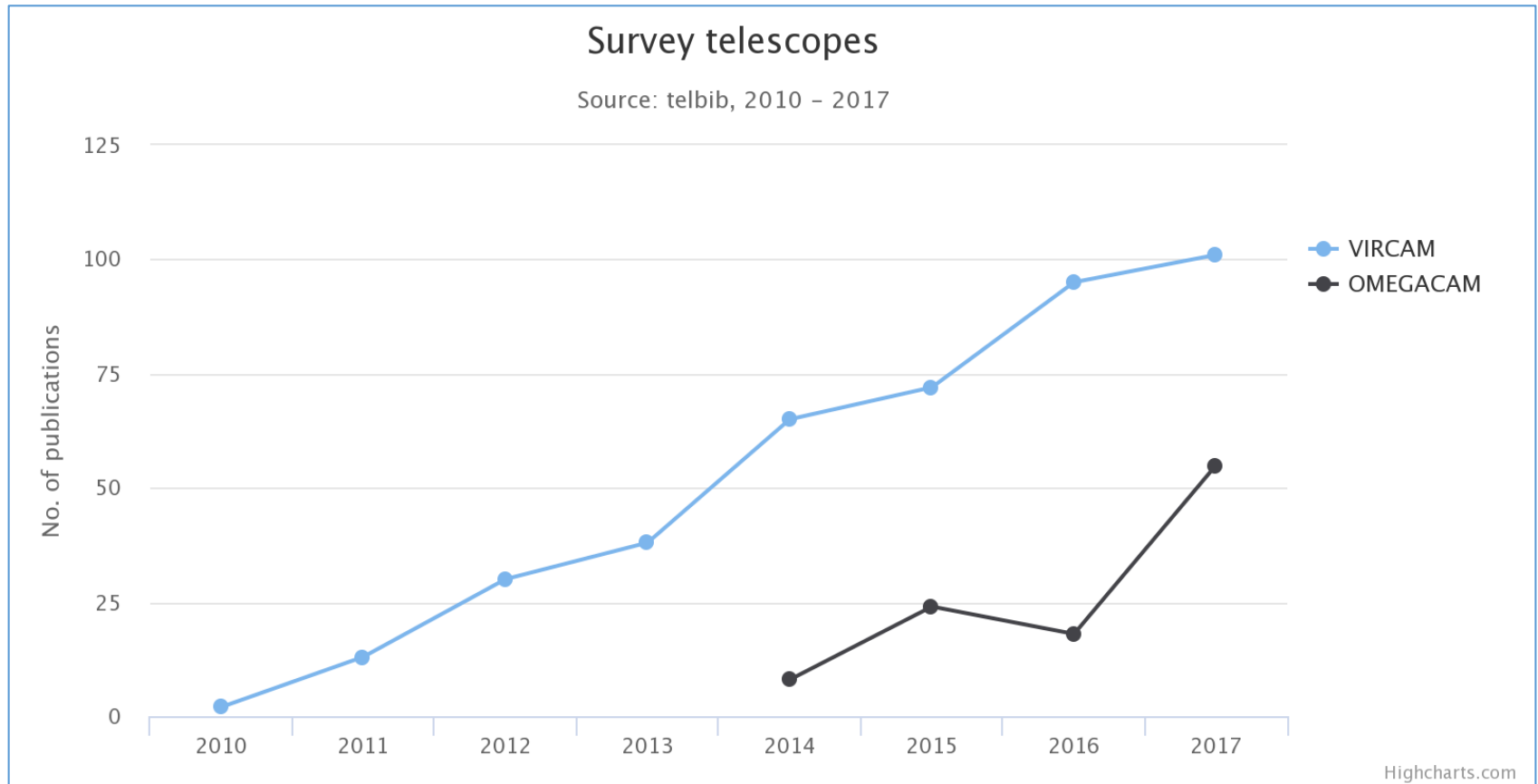


VST in the era of the large sky surveys, Naples, 5-8 June 2018

# Productivity



- ❑ Increasing number of papers
- ❑ 55 papers in 2017
- ❑ Good slope
- ❑ Let's keep the gradient





## INAF Opt-NIR Medium – Large Telescopes

- Telescopio Nazionale Galileo (3.6-m)
- LBT (2x8.4-m) 25%
- VST (2.6-m) through ESO
- ESO Telescopes as member state

### From the INAF side

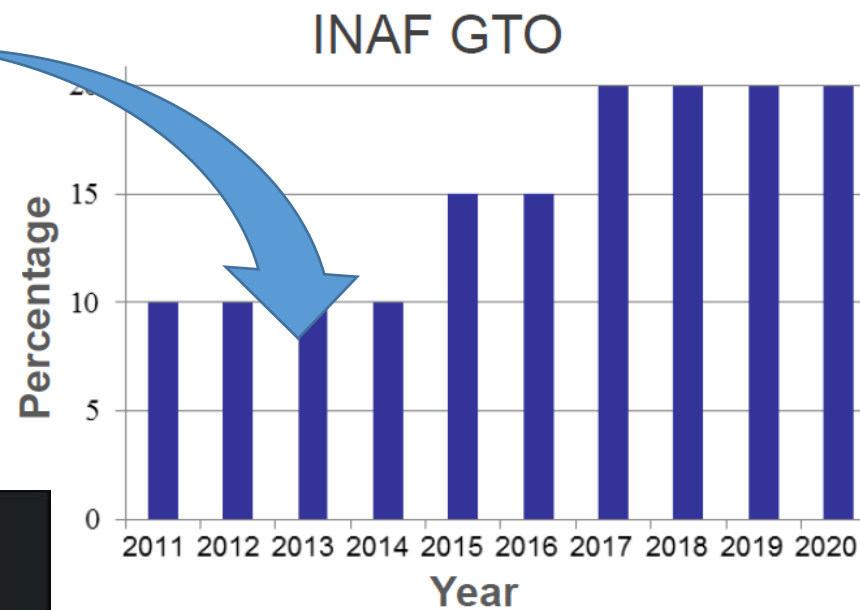
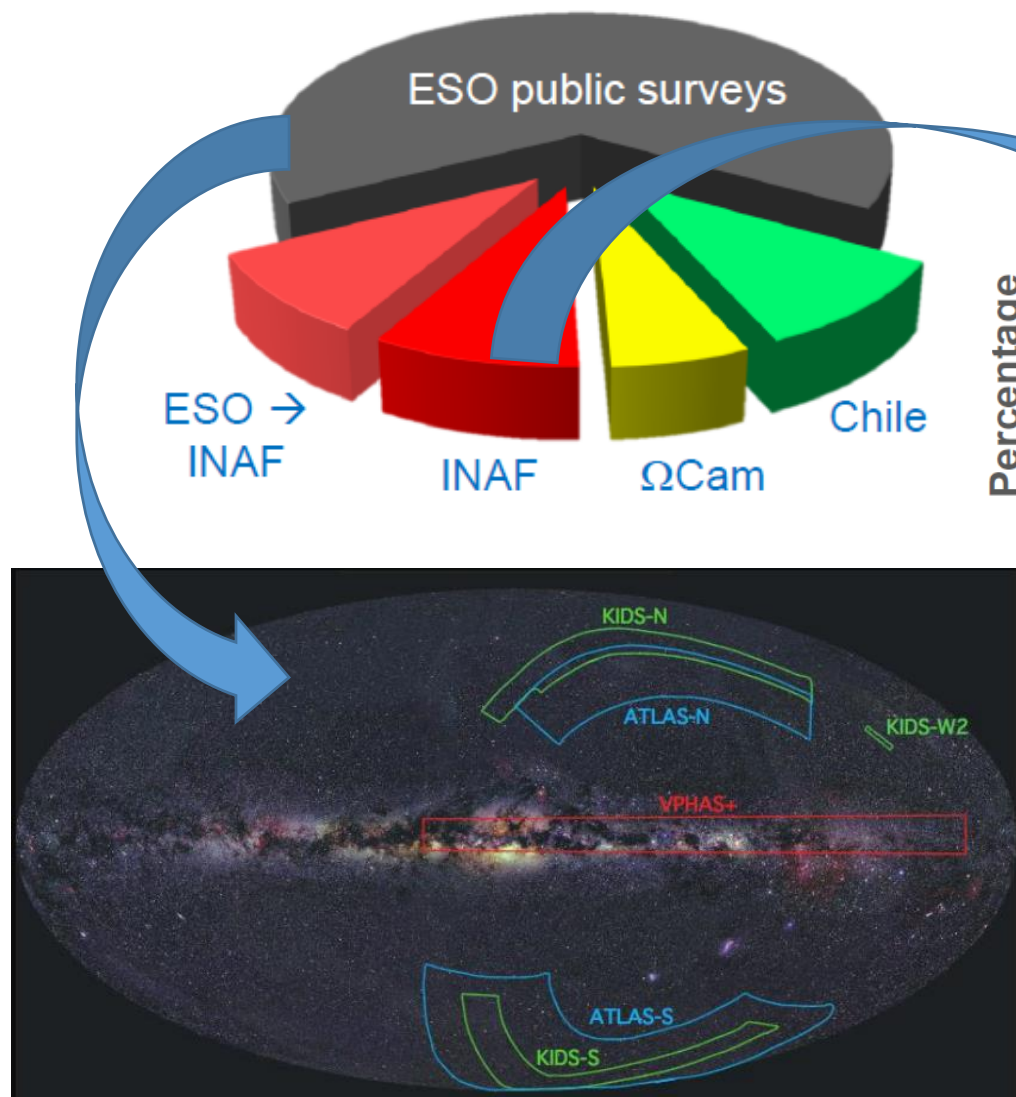
- Lot of VST GTO
- VST mostly available for ‘long & large’ programs
- ESO telescope?

### From the ESO side

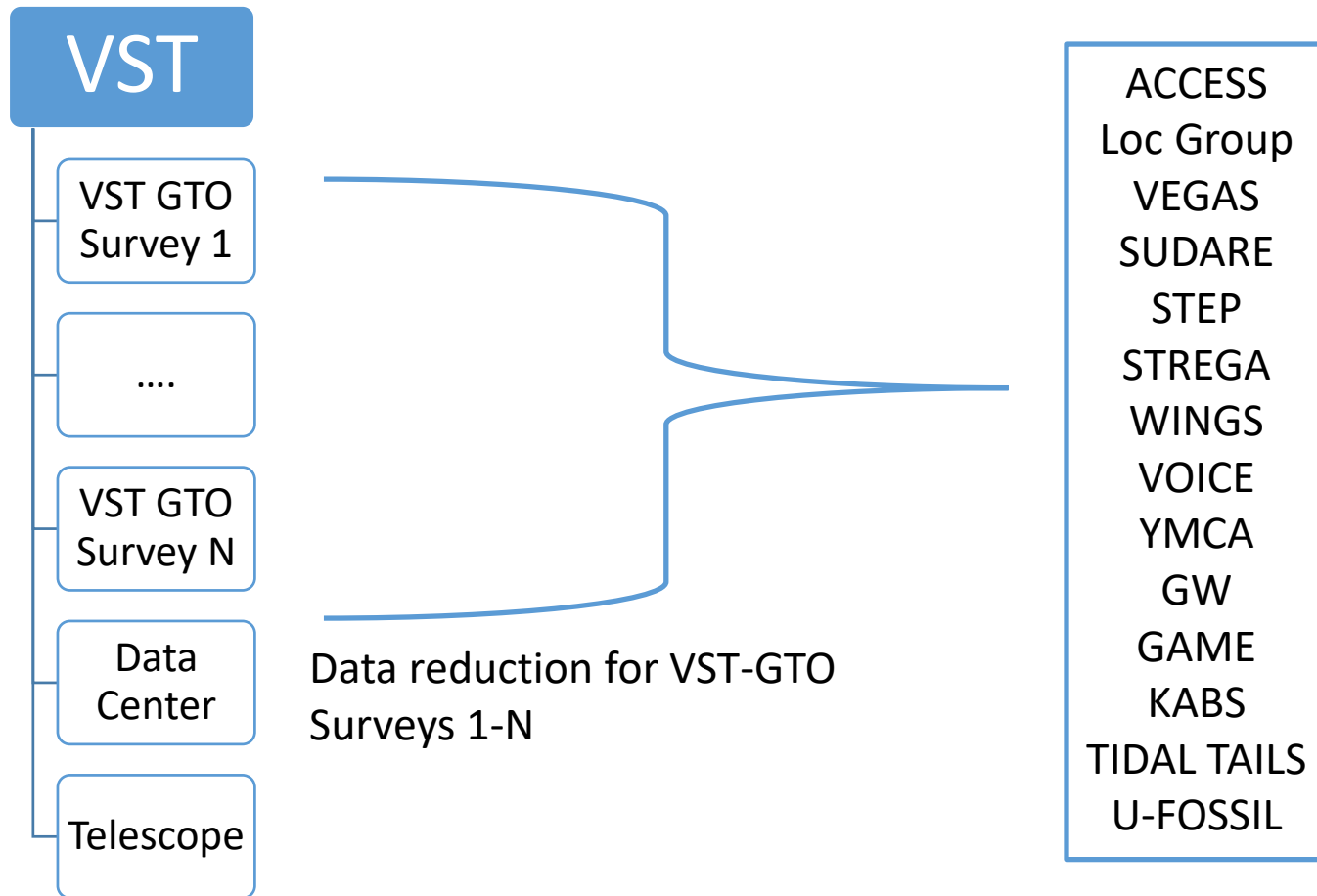
- INAF telescope?

**It's a joint collaboration**

# Observing Time 2011-2021



**GTO in return for the contributions to the VST**



## VST Project Resources

20% of observing time, personnel, machines, *telescope*

## A New Scenario

- Current programmes (public, GTO) will be over
- Current MoU will be over (2021)
- New imaging survey facilities from ground & space (e.g. LSST, EUCLID, etc.)
- New wide-field spectroscopic facilities (e.g. 4MOST, WEAVE)
- New large-scale facilities (e.g. ELT, CTA, SKA)

## Start now to plan the future

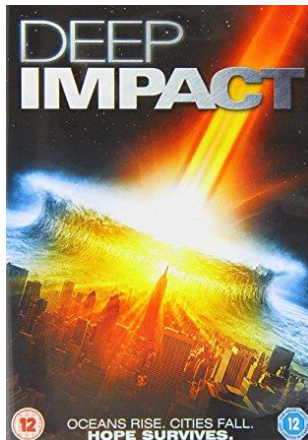
- Science drive is essential*
- Ideas take time to become projects
- Scientific ideas in the 2020 scenario
- Instrumentation upgrades
- Scientific Synergies

## Brainstorming, ideas, private conversations

### 'Small' Impact

- Currently unused systems (ADC, Probe)
- They might be replaced with something else to add further science capabilities
- Imaging Camera (+ AG & IA) untouched

OR



**Thanks**  
**Have a nice conference**