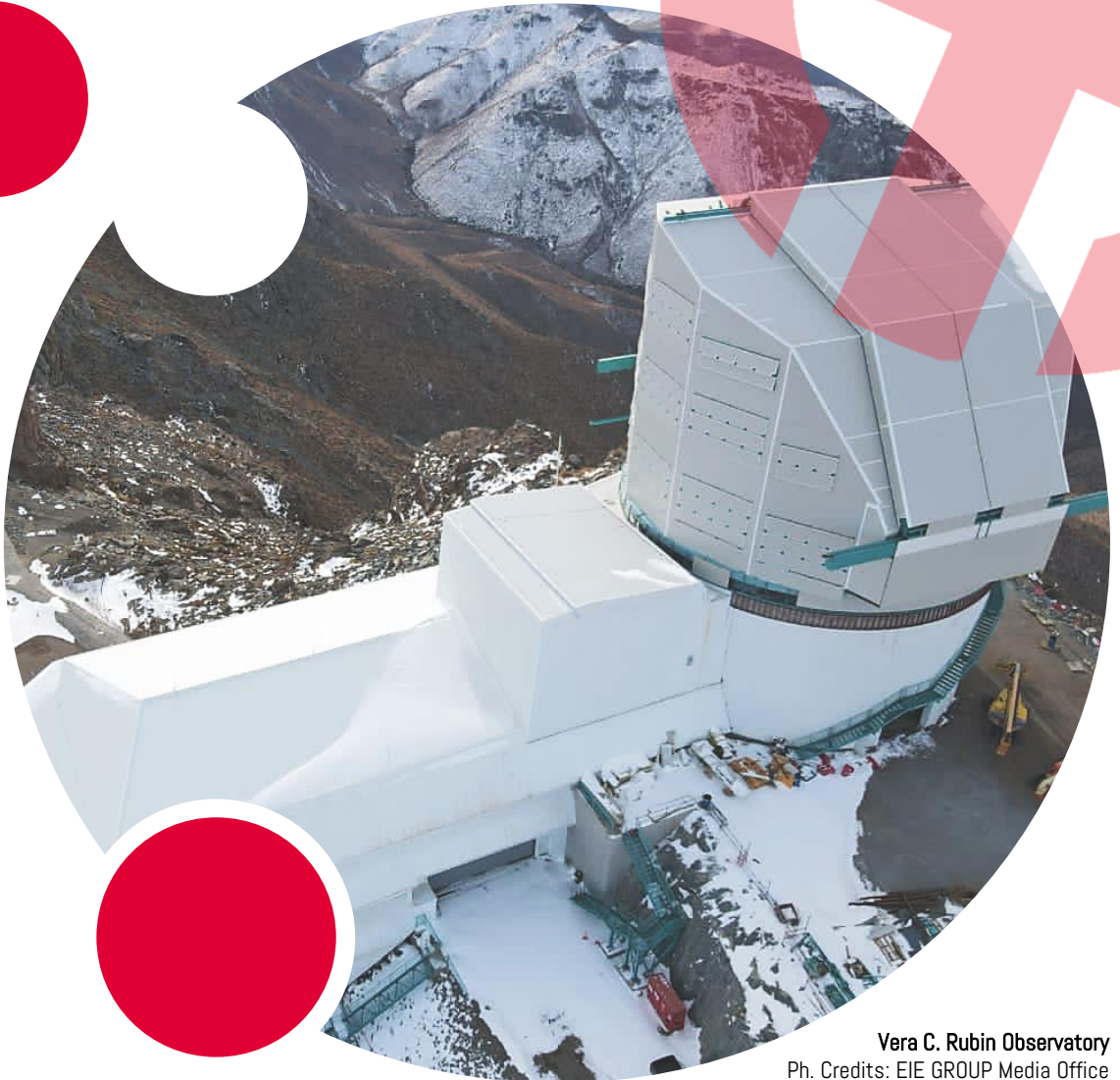

EIE GROUP DIGEST

Anno XXXII

DECEMBER 2021



Vera C. Rubin Observatory
Ph. Credits: EIE GROUP Media Office

THE POWER OF CREATIVITY

It was in 1991, 2 years after EIE foundation and upon the signature of the contract for the Design, Manufacture and Erection in Chile of the 4 Telescopes Main Structures of the Very Large Telescope (VLT), that we coined this payoff. Creativity is not an inborn quality, but rather an ability that blossoms and develops over time: means innovation, knowledge, responsibility, awareness, challenges, improvements. Since then, the sign of EIE's Power of Creativity is on the best performing telescopes and observatories around the world (NTT, VLT, VISTA, VST, LSST, ELT, ...) and, today, let us move confidently in the era of the Big Science projects in Astronomy and Aerospace, of the Giant Telescopes, Domes and the most innovative applied industrial technology. It's a never-ending fascinating adventure: follow us...discover us!



Gianpietro Marchiori
President & CEO of EIE GROUP
Ph. Credits: EIE GROUP Media Office

PRESIDENT'S GREETINGS

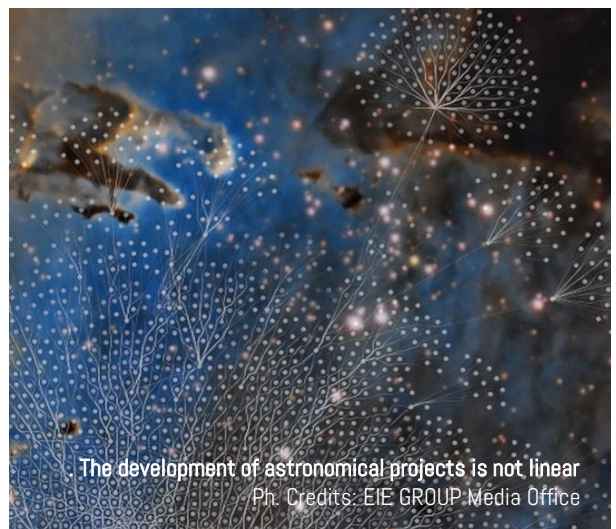
Innovating in the years of SARS-CoV-2 syndrome is a challenge within a challenge. 2021, the second year of the pandemic, the thirty-second year of EIE, was a time in which we reaped the fruits of intense and exciting teamwork. We emanated new and profitable messages of mature technology towards new international markets; we activated qualified and authoritative relationships with customers and institutions, but also with new partners; we significantly expanded our order book, diversifying products and applications; we also improved and strengthened the Supply Chain in a more international contest, rich in cutting-edge technologies. We successfully dealt with operational continuity in our construction sites, scattered over various continents, guaranteeing the Erection and Test programs. All company departments continued uninterruptedly to provide services in compliance with the legal provisions on COVID. We signed important contracts and celebrated important anniversaries of our works. Everything in the name of processes with cutting-edge content but also the result of mature iterations with the techniques of Management, Engineering & Design, Manufacturing as well as accurate verification of all specification and project requirements. We have important goals for next year: participation in new major projects and the construction of a new integration facility. We will do this through a profound organizational renewal, also in resources and training: every new challenge is always a moment of growth for EIE.

Our projects represent our evolution, still remaining loyal to the key values of performance, efficiency, innovation, research, culture and partnership, we have believed in since the beginning of our story. EIE GROUP, going back to the future.

THE (NON) LINEARITY OF TECHNOLOGICAL DEVELOPMENT

Excellence expressed in the themes of technology, intellect, passion, and work is based on the concept of person and commitment. What does it mean to look to the future in terms of these coordinates? It means knowing how to look far, interpreting the interdisciplinary nature of development processes according to the dogmas of a systemic vision. The desire towards wanting to build ever larger telescopes, in the so-called giant class, is therefore not only a question of multiplying known proportions and knowledge. In fact, this process requires the overcoming of limits, that are technological, structural, optical, and logistic challenges unique in the world. These limits, if expressed in terms of systemic vision and system interfaces, impose non-linearity in the design, both in the domain of what is known, in the new development needs. Non-linear thinking and transversal vision represent a central point of our business capacity, always and in any case grateful to emotions and creative intelligence as

indispensable tools for development. The development of innovative astronomical projects is therefore not linear, hence based on the continuous destruction of previously acquired information to create new knowledge that improves the previously known one.



The development of astronomical projects is not linear
Ph. Credits: EIE GROUP Media Office



Vera C. Rubin Observatory Enclosure. Crane Installation
Ph. Credits: EIE GROUP Media Office

CONSTRUCTING BEYOND LIMITS

The **Vera C. Rubin Observatory** is the result of a public-private partnership between the USA National Science Foundation (NSF), the lead Federal Agency of the project, the Department of Energy and the Association Of Universities For Research In Astronomy (AURA), and the LSST Corporation. During its operation, the 8.4m class telescope of the Vera C. Rubin Observatory will scan very large areas of the sky like never before. EIE GROUP is involved in the project since 2015. In particular, EIE GROUP has developed the Detail Design, the Manufacturing, and the Erection on Site of the giant Rotating Building. The activities related to such 30-meter diameter dome represent an exceptional technological and engineering challenge, but the project is here today, in the final steps of the construction phase. Today we are also here looking to the past asking ourselves how all this was possible. From the very first project activities, we realized that we were creating a unique project in the world. Such a large dome, full of subsystems that were as technologically as mechanically difficult to design! We faced great risks, we lived through difficult times, but with this project we gave our best to take the performance of the Vera C. Rubin Observatory Rotating Building to the best limit for the astronomy of the future: the extreme.

EIE GROUP @ TNG25

On the 19th October 2021, the Company EIE GROUP participated to the TNG25 event, a celebration of the 25 years of activity of the Galileo National Telescope. EIE actively participated in the event, bringing all its experience in the astronomical and industrial fields in a totally dedicated speech. In the figure of the President & CEO Eng. Gianpietro Marchiori, the Company brought its own testimony on the actions, moments and anecdotes at the birth of the project. Among the contributions, a central theme has been the future of Italian astronomy, the frontier of technological and scientific investment of the most modern astronomical projects like SKA and CTA.



TNG Dome
Ph. Credits: Telescopio Nazionale Galileo



TNG Telescope
Ph. Credits: Telescopio Nazionale Galileo



Louver Assembly
Ph. Credits: EIE GROUP Media Office



Light Baffle Fabrication
Ph. Credits: EIE GROUP Media Office



Cladding Installation phase
Ph. Credits: EIE GROUP Media Office



Embedded Plates Installed
Ph. Credits: EIE GROUP Media Office



Louver Assembly final phases
Ph. Credits: EIE GROUP Media Office

DAG TELESCOPE & DOME. A PERFECT INTEGRATED MACHINE

The Dogu Anadolu Gözlemevi (DAG) Eastern Anatolia Observatory is an exciting astronomical project fully funded by Turkish Ministry of Development and the Atatürk University of Astrophysics Research Telescope (ATASAM). Since 2015, the project has seen the crucial contribution of EIE GROUP in the Design, Production and in-site Installation of the 4m class optical/near-infrared telescope, in contract with Amos, (DAG-Telescope) and of the 18m-diameter Rotating Building (DAG Dome) at an altitude of 3170m asl on the Erzurum Plateau, Turkey. DAG is the result of more than 32 years of excellence and advanced technological research activities made by EIE GROUP. From the concrete foundations, to the last structural elements of the telescope, each component has been designed to harmonically operate with any other subsystem to achieve the best telescope's observational performances on the sky. Accordingly, careful temperatures supervision, wind protection, and air-flow control are the simplest but more fundamental keywords to describe EIE's approach to system

engineering for the perfect functioning of the Dome as an integrated machine with the telescope. But excellent optimization processes and competitive costs are not innate qualities, but rare skills supported by the strong and unique experience of EIE GROUP on internationally recognized projects of similar size like NTT, VLT, VST and ASTRI. Under such perspective, 4m class telescopes and related Domes represent nowadays a consolidated part of EIE core-business, a standard product in EIE catalogue able to satisfy the most critical observational requirements of astronomers.



DAG Dome
Ph. Credits: EIE GROUP Media Office



DAG Telescope
Ph Credits: EIE GROUP Media Office



ITALIAN SCIENTIFIC ATTACHÉES

Joining a very interesting activity proposed by the Italian Ministry of Foreign Affairs and International Cooperation (MAECI), EIE virtually met the Scientific Attachées of the Italian Embassies in Seoul, Pretoria, Mexico City, New Delhi, Chongqing and Shanghai. A great chance to know more, to exchange ideas, to introduce EIE's experience in regard to the attitudes of the local Scientific Astronomical Communities and Big Science Projects. EIE thanks the Italian Ministry and the Italian Scientific Attachées for this important opportunity of discussion and support.

FOREIGN SCIENTIFIC COMMUNITIES AT A GLANCE

Despite the global inability to travel, EIE attended some Roundtables and technical meetings with the astronomical and scientific communities of various foreign countries, including Mexico, Russia, India. A chance to discuss, to introduce our experiences and solutions, to learn requirements for future challenges!

INTEGRATED WORK TEAMS

When discussing how to develop new projects and new technical solutions, engineers, astronomers, physicists, university professors, logistic experts, designers, project & Marketing Managers, experts in intercultural relations sit at the tables of EIE GROUP: different voices and different experiences for a unique integrated work team at customer disposal. Would you like to know them?

EIE @ UNESCO

On January 20, 2022, EIE confirms its dissemination activity by holding a conference entitled "Things from the other world: free digression on the cosmos and on technologies for science" with Prof. Capaccioli at the Caserma Cornoldi in Venice (Venice Club UNESCO).

ASTRO & SPACE LAB

There is a new place where EIE's ideas and skills take shape: EIE ASTRO & SPACE LAB. This is our new integration facility located in Venice hinterland, where our projects become reality and our experts follow the entire pre-assembly phases. New information are coming soon!





Firmamento, 1913

Ph. Credits: Wenzel Hablik
 Itzehoe, Germany, Wenzel Hablik Museum
 COSMOS – Bompiani, marzo 2000

The Future of Radioastronomy in South Africa

LA poltrona **ROSSA**



A CONVERSATION
 WITH

Dr. Pierguido Sarti

Scientific and Technological
 Attaché, Italian Embassy in
 Pretoria

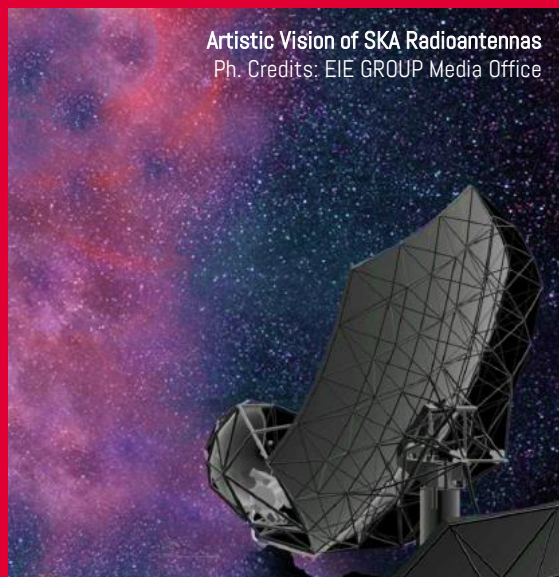
Within the framework of scientific cooperation between Italy and South Africa, astrophysics and radio astronomy are considered some of the most qualifying and significant themes. According to this view, an intense network of collaborations have been developed in connection with the *Square Kilometer Array* (SKA) radiotelescope and its precursors *MeerKAT* and *MeerKAT Plus*, of which Italy, in addition to being a leading scientific partner, is also one of the main financiers. More precisely, through its scientific and industrial system, our country is now actively involved in the development of the technologies - mechanical and electronic - necessary for the completion of the radio interferometer.

In this context, the *Italian Embassy* in Pretoria, through its *Scientific Attaché*, has long been committed to supporting the synergies between Italian and South African research centers and scientific institutions, being also at the service of our companies that, thanks to their technologies and high-level skills, intend to participate in tenders for the construction of the various components of the radio telescopes

and of the related systems for data acquisition and management.

The SKA interferometer is one of the most important scientific projects for the beginning of the century, and it will have enormous repercussions in the industrial, engineering and scientific sectors, thanks to the innovations that will be needed in areas such as calculation, data management and electronics of various components.

The Embassy remains at the service of the Italian scientific-technological system, and supports its internationalization acting as a point of reference and connection for the success of the activities of our companies, universities and research centers.



Artistic Vision of SKA Radioantennas

Ph. Credits: EIE GROUP Media Office



The Power of Creativity
Since 1989

CONTACTS

HEADQUARTERS | Via Torino 151A, Mestre Venice, ITALY | Phone | +39 041 531 7906 |

INTEGRATION FACILITIES | ASTRO & SPACE LAB | Via Maestri del Lavoro 39 Mira Venice, ITALY |

WEBSITE | www.eie.it |

EMAIL | info@eie.it |



MERRY CHRISTMAS
& HAPPY NEW YEAR



www.eie.it

EIE GROUP | We are an International Engineering, Procurement, Construction and Commissioning (EPCC) Company globally operating for more than 32 years in areas such as Aerospace, Astronomy, Astrophysics, and Big-Science, Infrastructures.

The core of the EIE GROUP expertise is the capability to manage large and complex projects, developed in the course of a multi-decennial working history with the most prominent customers, suppliers, scientific institutions, and industrial groups of the world.