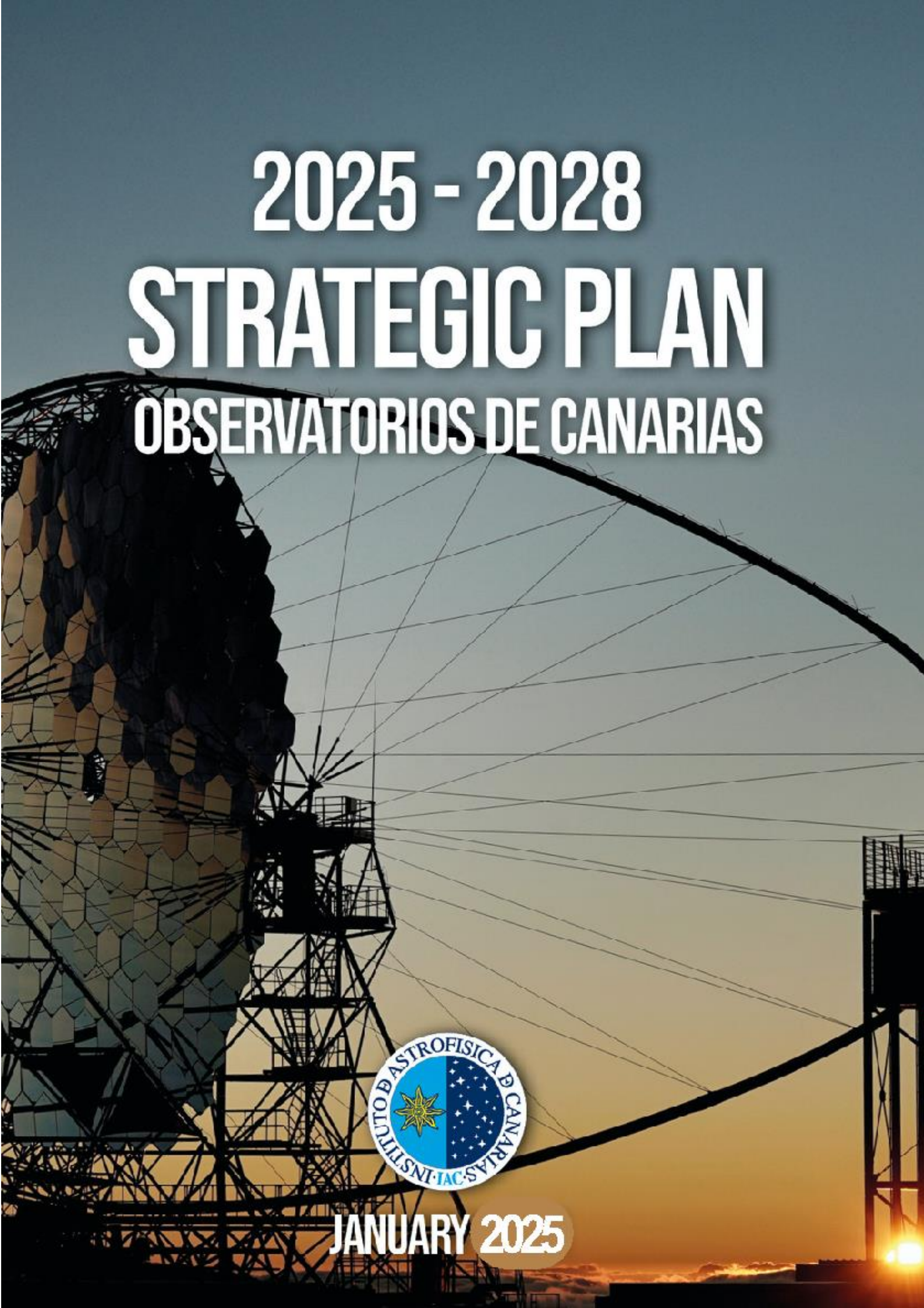
2025 - 2028
STRATEGIC PLAN
OBSERVATORIOS DE CANARIAS



JANUARY 2025

EXECUTIVE SUMMARY

The Observatorios de Canarias (OCAN) stand as one of the world's most productive and cost-efficient astrophysical facilities, offering unparalleled resources to Spanish researchers. Recognized as a “Infraestructura Científico Técnica Singular” (ICTS), OCAN is dedicated to the exploration of the Universe and the preservation of the sky, a natural treasure of the Canary Islands protected under national law. Over the past four decades, the observatories have attracted more than 75 institutions from 27 countries to establish telescopes and instruments, showcasing the exceptional conditions Spain provides as a host nation. To date, international investment at OCAN exceeds €800 million, with the potential to double in the coming years, bringing profound benefits to global science and significant returns to Spanish research, development, and innovation.

The strategic plan for 2025-2028 builds on the advanced expertise and international collaboration that have shaped OCAN into a leader in global astronomy. It presents an ambitious vision centred on 31 strategic actions, 17 of which are deemed high priority. The plan includes a funding request of 30,26M€ million under the ICTS National Plan, which will support initiatives to enable high-impact science through the development and operation of cutting-edge international telescopes. Key telescope projects include Laser Guide Star technologies for OCAN facilities, the Cherenkov Telescope Array Northern Observatory, the European Solar Telescope, a node of the next-generation Event Horizon Telescope, technologies for the Exo-Life Finder prototype, and IAClink, a dedicated facility for research and development in Free-Space Optical Communications.

The observatories will also undertake a comprehensive characterization of their atmospheric boundary layer, ensuring optimal performance and addressing new environmental challenges. This includes enhanced monitoring of operational parameters and the implementation of sustainability measures to mitigate the impact of satellite mega constellations. We outline a novel data archive effort for the distribution of OCAN facilities observations. A parallel effort will focus on advancing technological innovation, with the development of world-class instrumentation and upgrades to existing facilities. This includes the design of advanced cameras, spectrographs, as well as telescope guiding systems. The observatories will also modernize infrastructure to support these goals, with investments in sustainability aspects, improved telecommunications and energy solutions, among others. These measures will ensure the observatories’ continued capacity to deliver transformative data to the scientific community.

Human capital development and societal engagement are central to OCAN’s vision for the future. The plan prioritizes attracting and retaining talent through training and career development. Efforts are included to strengthen OCAN’s international presence and to establish synergies with leading institutions worldwide that will enhance its impact and visibility. Public outreach and education initiatives will continue to play a key role in fostering societal appreciation for astronomy, deepening OCAN’s connection with the community, boosting STEM inspiring scientific careers and amplifying its contributions to science and technology.

OCAN is committed to sustainability and equity as integral components of its strategy. The observatories will take proactive measures to reduce their environmental footprint while maximizing the scientific impact, reach, and overall access to their facilities. By combining technological advancement, international collaboration, and a strong societal commitment, OCAN’s 2025-2028 strategic plan ensures its position as a cornerstone of global astronomy and a beacon of scientific excellence.

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1. MISION, VISION AND VALUES

Vision

To enable discovery and breakthroughs in Astrophysical research and technologies by harnessing the opportunities created by the skies of the Canary Islands.

Key elements to achieve the vision:

- Attract and host next-generation telescopes and instrumentation.
- Position the observatories as a global hub for astronomical excellence.
- Enhance strategic alliances with leading research infrastructures.
- Drive policies that ensure long-term sustainability.
- Strengthen Spain's leadership in Space Sciences and Astrophysics.
- To protect the skies.

Mission

OCAN employs a skilled workforce that operates world-class astronomical observatories, performs outstanding research, pursues technological innovation, trains future generations, and projects the benefits of science to society.

Key elements to fulfill the mission:

- Ensure the protection and sustainable use of the Canarian skies.
- Develop and maintain world-class observatory infrastructure.
- Facilitate seamless collaboration with international institutions.
- Promote training and education for scientists and technicians.
- Support knowledge transfer across the global scientific community.
- Sharing data.
- Remain at the forefront of astronomical research updating existing facilities.

CORE VALUES

EXCELLENCE: To strive for research excellence by providing world-class infrastructure, optimal conditions, and fostering effective collaboration among User Institutions.

INNOVATION: To drive technological and scientific advancements by fostering creativity, cutting-edge research, and the development of novel solutions for emerging challenges in astronomy and related fields.

SUSTAINABILITY: To ensure the sustainable use of the Canarian skies, protected by law and renowned for their decades-long preservation, through an effective model of international collaboration.

TEAMWORK: To promote education and training for early-stage researchers and technicians, fostering knowledge transfer within the scientific community and beyond.

INTEGRITY: To raise social awareness of the value of research and its pivotal role in building a knowledge-driven economy.

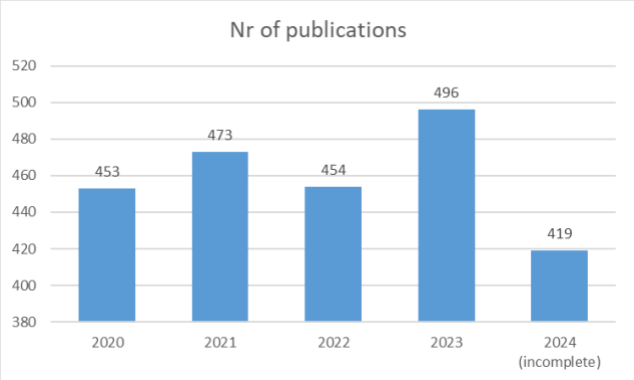
2. FULFILMENT OF THE OCAN STRATEGIC PLAN 2021 - 2024

GENERAL CONTEXT AND FOREWORD

The OCAN undoubtedly represents one of the largest collections of multinational telescopes found anywhere in the world. This has been the result of the extraordinary astronomical conditions; the continuous characterization and the proper maintenance of infrastructure and services offered in an optimized and flexible manner. The OCAN is adapted to a user community with very different needs from large telescopes to simpler experiments, from on-site observations to remote or even fully robotic operations, all while addressing the significant demands for data storage and management required by modern experiments.

The OCAN operates as a "community of neighbours" coordinated by the CCI (International Scientific Committee), established by the 1979 Agreement on Cooperation in Astrophysics. The IAC manages the common services and ensures that the support infrastructures are well maintained and developed by securing specific funding. Moreover, the IAC has modernised the entire communications network by laying optical fibres to connect both Observatories with the main headquarters and the world-wide academic network.

In the past years, there has been remarkable progress at the OCAN, with the installation of 6 new facilities, including the first 23m prototype telescope, LST1. In addition, the OCAN will host the European Solar Telescope (EST), conversations have started for the installation of the Tenerife EHT antenna and the ORM is still considered as the alternative site for the installation of the US-led Thirty Meter Telescope (TMT), with a final decision expected during the timeline of this Strategic Plan.



An indicator of the quality and quantity of the scientific research conducted at OCAN is its remarkable productivity, with over 2,250 peer-reviewed papers published in the last five years based on observations made with its telescopes.

The Strategic Plan 2021-2024 approved for the *OCAN* in 2022, established three major goals broken down in **27 specific actions with a requested funding of roughly 34 million euros**. These actions complement each other to provide and support state-of-the-art facilities to perform frontier research in astrophysics, ensuring the best natural, technological, and logistical conditions, while fostering a fruitful framework of international collaboration. A group of 12 actions were ranked as top priority amounting to a total requested budget of almost **17 million euros**.

A total of 5 of these prior prioritized actions activities are being implemented through a competitive grant awarded by the Ministry of Science, Innovation and Universities:

1. ***European Solar Telescope (EST)***

a) EST/IFS-IR Spectropolarimeter:
Designing an Integral Field Spectropolarimeter for EST based on image slicers, capable of acquiring 2D maps and the spectrum for each point in the observed field, operating simultaneously in several near-infrared spectral bands.
b) Multi-Conjugate Adaptive Optics (MCAO):
As a built-in capability defining the sensing, control, and wavefront correction strategy applied to the EST's field of view.
c) Preparation for EST Construction:
Completing the necessary work to consolidate EST's Preliminary Design, obtain construction permits, and prepare tenders required for the Construction Design phase.

2. **Upgrade of the Cosmic Microwave Background Facilities**

MFI2: Commissioning and operation of MFI2, an improved version of the original Multi-Frequency Instrument (MFI), which completed over 25,000 hours of observation and led to numerous scientific publications. MFI2 was installed at the Teide Observatory's QUIJOTE 1 telescope in December 2023.
TMS: Development of the Tenerife Microwave Spectrograph (TMS), designed to measure spectral distortions in the Cosmic Microwave Background and sky microwave emissions in the 10–20 GHz band. The instrument is currently in the design and manufacturing phase.

3. **Construction of the Cherenkov Telescope Array (CTA-North)**

This initiative focuses on technical support for infrastructure and permit requirements. The resulting deliverables include an Initial Study, Basic Project Plan, and Environmental Impact or Legal Documentation needed for licensing. These ongoing activities are subject to local building permits and environmental evaluations by the corresponding authority.

4. **New Technology Hybrid Optical Telescope (Small-ELF)**

Small-ELF is a 3.5-meter telescope designed for high-angular- spatial resolution astronomy with bright sources, serving as a technological demonstrator for the much larger ELF telescope. A detailed design, funded by the Ministry's recovery plan, provides optical, mechanical, and electronic solutions with estimated costs. This initiative aims to complete the construction of the 3.5-meter prototype, consisting of 15 mirrors of 0.5 meters in diameter mounted on a "bicycle wheel" structure. The Small-ELF prototype incorporates innovative technologies to reduce the weight and cost of future 40-meter-class telescopes by an order of magnitude, offering unparalleled optical wavefront performance and coronagraphic capabilities.

5. **An ATLAS Node at OT for Planetary Defense**

Early detection of Earth-impacting asteroids is a cornerstone of Planetary Defense strategies. Technological advancements now allow for full-sky imaging every night with real-time data processing. Among the most successful surveys is the "Asteroid Terrestrial Impact Last Alert System" (ATLAS), developed by the University of Hawaii and funded by NASA.ATLAS-Teide is a modular system co-developed by IAC and the University of Hawaii. Together, the 16 telescopes will image the same sky field with a sensitivity of $V < 19.5$, offering improved cost-efficiency, easier maintenance, and greater operational flexibility compared to previous designs. This initiative will fund the necessary personnel for the development, installation, and commissioning phases.

Another four top priority actions of the Observatories Strategic Plan 2021-2024 were not funded by the call and their scope was adjusted for implementation with IAC's internal funds. All of them are in progress:

- **The New Robotic Telescope (NRT):** the project advanced from a preliminary design towards the final design phase, with the IAC playing a key role despite financial constraints. Notable contributions include designing the telescope's optical configuration and acquiring the necessary manufacturing equipment, progresses defining the control system architecture, and developing preliminary designs for the primary and secondary positioning systems. The project has failed to secure funding from a number of partners and its future is uncertain at present.
- **ASTRI MINI-ARRAY of gamma-ray telescopes:** The first telescope of the ASTRI-MiniArray, located in Tenerife, is currently undergoing commissioning. The other eight are under production and will be installed within the next two years.
- **DEVELOP AND CONSTRUCT LEADING ASTRONOMICAL INSTRUMENTATION: ARES HARPS3 & HORuS** Thermal conditioning work in the INT Coudé Room has been completed, with thermal enclosures and air conditioning units operational since late 2024. Final adjustments to temperature and flooring are pending before integrating the HARPS3 instrument in summer 2025.

  The HORuS spectrograph was upgraded to HORuS+ with a new CCD camera and an adjusted acquisition arm for GTC's secondary mirror. It was reinstalled on the Nasmyth-B platform, demonstrating successful object acquisition. Testing is expected to conclude in

2025, making HORuS+ available to the scientific community.

- **Detailed design of a Dark matter Telescope.** The project aims to develop high-frequency technology for broadband axion-like dark matter searches, having completed the final phase of the proof-of-principle stage, known as DALI PoP, during this period, and now beginning the detailed design of the full-scale DALI experiment.

The last two top priority actions were not executed due to lack of funds available and now they are included again as high priority actions for the new period:

- **Global environmental analysis & monitoring plan of the OCAN.**
- **Definitive characterization of the boundary layer and monitoring new operational parameters.**

The following medium-priority actions have not been fully executed or are currently in the early stages of implementation:

- THÉMIS and GREGOR at the OCAN
- Microwave Technologies for CMB Polarization and Spectroscopy
- Installation of Quantum Key Distribution Equipment at the OGS Telescope
- TCS Upgrade in the Age of Time Domain Astronomy

Efforts are ongoing to advance these initiatives as part of the strategic plan 2021-2024. The publication of a new European Regional Development Funds (ERDF) funding call is expected to complement the financing required for other priority initiatives identified in the ongoing Strategic Plan 2021–2024.

Finally, the following actions reduced their priority or kept it as a low level due to diverse circumstances not requesting funding through the ERDF funds, although some of them have mas some progress:

PRIORITY ACTION	CURRENT STATUS
TOT4 – OPTICAL IR ROBOTIC TELESCOPE FOR THE OT (REDUCED PRIORITY).	*Not executed due to lack of participation from other institutions, especially international ones, in a project of this scale.*
ALIOLI, AN ADAPTIVE OPTICS MODULE FOR WHT, NOT AND TCS.	*Not executed due to lack of funding resources.*
PARTICIPATION IN THE DEVELOPMENT OF SCIENTIFIC INSTRUMENTS FOR THE THIRTY METER TELESCOPE (TMT)	*No decision has been made yet regarding the final site for TMT.*
ELECTRICAL SYSTEM IMPROVEMENTS ON TEIDE OBSERVATORY. RING CONFIGURATION.	*No permits available yet.*
IMPROVEMENT OF THE SECURITY FACILITIES AT OCAN	*Guard post and new access to the OT completed.*
PRESERVE NATURAL NIGHT SKY BRIGHTNESS OF OCAN	*Campaigns conducted by the Technical Office for Sky Protection.*
SUSTAINABILITY, EFFICIENCY AND ENVIRONMENTAL PROTECTION	*Plan approved by the IAC's Commission on Environment and Sustainability.*
COMMUNICATION TO THE GENERAL PUBLIC AND VISIBILITY OF THE OCAN	*Multiple communication and dissemination initiatives carried out in support of the OCAN.*
UPGRADE THE OGS AND PRODUCTION OF PILOT INTERFERENCE FILTERS	*This action has been moved to a collaboration with the Javalambre Observatory.*

3. SWOT ANALYSIS

Following widely recognized methodologies for strategic analysis, we conducted a thorough assessment of the current state of the OCAN in 2024. This process allowed us to identify and categorize the key strengths, weaknesses, opportunities, and threats outlined below

STRENGTHS:

- **International Prestige:** Renowned as a leading observatory and European flagship for northern hemisphere ground-based astronomy, attracting global collaboration.
- **Exceptional Astronomical Conditions**: Unmatched sky quality, protected by law and continuously monitored.
- **Cutting-Edge Research and Technology**: Competitive programs spanning forefront astrophysical research and advanced instrumentation.
- **Institutional Excellence:** Managed by the IAC, a Severo Ochoa Centre of Excellence, and recognized as a strategic national ICTS.
- **Robust Collaboration Framework**: Decades-long international collaborations based on agreements leading to successes in operating astronomical facilities. .
- **Hub for Future Research Infrastructure**: Magnet for new partnerships and cutting-edge research infrastructures.
- **Regional and Societal Integration:** Integral to the Canary Islands' Smart Specialization Strategy and strongly rooted in local society.
- **Synergies with Global Observatories**: Integration with international networks like ESO and ESA, fostering joint advancements.
- **Highly Skilled Workforce:** Expert staff supporting research, technology transfer, and public outreach.
- **Educational Synergies:** Unique, close collaboration with the University of La Laguna for advanced training of researchers.
- **State-of-the-Art Telecommunications**: Advanced infrastructure enabling efficient data transmission and collaboration.
- **Prime Location for Scientific Events:** Ideal setting for hosting international scientific meetings and workshops

WEAKNESSES:

- **Geographical Remoteness:** Challenges collaboration with major European research centers.
- **Limited RTD-Intensive Industry:** Weak local industrial base hampers partnerships and innovation.
- **Weak Regional Collaboration**: Insufficient knowledge transfer among regional RTD entities.
- **Low RTD Investment Levels**: Modest regional and national funding limits long-term planning.
- **Financial Management Constraints:** Inflexible budgeting complicates strategic planning.
- **Administrative Complexity**: Lengthy procedures delay new installations.
- **Erosion of Funding for Maintenance:** Insufficient funding threatens infrastructure upkeep.
- **Irregular Tracking Scientific Productivity:** Challenges in monitoring the impact of telescope access.
- **Non-competitive salaries** resulting in losses of human resources (scientists, engineers, and support employees)

OPPORTUNITIES:

- **Enhanced Synergies in Observations:** Outstanding potential for multi-wavelength collaborations between ground- and space-based observatories.
- **Development of Advanced Instrumentation:** Industrial partnerships to create cutting-edge technologies.
- **Attraction of Major Research Infrastructures:** Increased appeal as a host for new global facilities.
- **Access to External Funding**: Opportunities through Horizon Europe, PEICTI, and other programs.
- **Artificial Intelligence for Astronomy:** AI applications in data analysis and simulations.
- **Astronomical Computing Hub**: High-performance centers for data processing and storage.
- **IACTEC as a Catalyst:** Strengthening OCAN's connection with private-sector innovation.
- **Sustainable Astronomy-Based Tourism:** Promoting OCAN as a key driver of a sustainable, astronomy-based economy

THREATS:

- **Insufficient International Financial Commitment:** Limited global contributions to new infrastructure development.
- **Performance Decline:** Risk of reduced performance of facilities due to funding shortfalls.
- **Decline in Observatory Prestige:** Reduced ability to attract top facilities and collaborators.
- **Suboptimal Telescope Use:** Inefficient allocation of telescope time.
- **Aging Workforce:** Risk of operational gaps due to retiring staff.
- **Human Resource Drain:** Loss of talent due to rigid, uncompetitive conditions.
- **Inflexible Administrative Procedures:** Inefficiencies from unsuitable government processes.
- **Sustainable Funding Concerns:** Dependence on fluctuating government and external contributions.
- **Inability to manage competitive funding** obtained due to insufficient administrative support.

3. SWOT ANALYSIS

Countermeasures to Address Weaknesses and Threats:

1. Leverage EU and International Funding Opportunities
- Increase use of special EU funding programs for research and innovation in outermost regions.
- Intensify participation in Horizon Europe's Pillar I and the Widening Program to strengthen research capacity and visibility.
- Target funding schemes with high potential for innovation, infrastructure development, and capacity-building.

2. Private Sector Collaboration and Long-Term Funding
- To leverage the opportunities created by private, non-profit, foundations to develop long-term research projects, infrastructure operational support, and specialized training programs.
- Establish partnerships with industries in astronomy-related sectors (e.g., optics, robotics, AI) to foster co-development opportunities and enhance innovation.

3. Raise Political and Public Awareness
- To foster campaigns highlighting OCAN's socio-economic impact and multiplier effects of investment in its infrastructure.
- Work with regional, national, and international stakeholders to strengthen political commitment to sustainable funding.

4. Expand Observational Capabilities and Partnerships
- Launch and strengthen initiatives for constructing new, cutting-edge facilities (e.g., CTA-North, EST, ELF, NRT), ensuring OCAN remains a global leader in observational astronomy.
- Continuously upgrade existing telescopes and instruments to maintain competitiveness on a global scale.

5. Enhance Technological and Operational Capabilities
- Strengthen IAC's technological expertise in advanced areas such as microelectronics, high spectral resolution, cryogenics, and detector technology to meet OCAN's evolving needs.
- Position OCAN as the premier site for major new telescopic installations (such as TMT), proactively securing necessary permits.
- Develop innovative laser-based communication links (e.g., between OT and ORM), collaborating with European institutions and private companies.

6. International Promotion
- Launch a global promotional campaign emphasizing OCAN's unique advantages (e.g., exceptional sky quality, and state-of-the-art facilities).
- Foster international collaborations to secure high-profile projects at OCAN as a world-class observatory.

7. Synergies Between Space and Ground-Based Observatories
- Increase IAC's participation in space missions (e.g., PLATO, LiteBIRD, IACSAT-1, and cubesats) and foster synergies with OCAN's ground-based facilities for complementary research.

8. Recruitment and Talent Retention
- Improve recruitment strategies to meet international standards, attracting both researchers and engineers.
- Promotion of new permanent positions for managers and technical specialists to strengthen support for OCAN activities.

9. Productivity Monitoring and Digital Transformation
- Implement a KPI-based monitoring system to track and analyze OCAN's scientific productivity, enabling corrective measures for underperformance.
- Strategically anchor OCAN's digital transformation, streamlining administrative processes and fostering operational efficiency, with completion targeted by 2028.

10. Sustainability and Environmental Compliance
- Develop sustainable practices to balance OCAN's operational needs with environmental restrictions and local community concerns.
- Build stronger relationships with local stakeholders to mitigate environmental opposition to new installations.

Immediate Priorities (Next 1-2 Years)
- Focus on securing funding through EU programs and private partnerships.
- Promote OCAN's competitive advantages globally to attract collaborations.
- Address administrative and recruitment inefficiencies to improve operations.

Mid-Term Goals (2-4 Years)
- Develop new facilities and upgrade existing telescopes.
- Strengthen IAC's technological capabilities in critical areas.
- Implement robust productivity monitoring and digital transformation initiatives.

Long-Term Objectives (4+ Years)
- Secure OCAN's position as a global leader by completing major projects and ensuring long-term funding sustainability.
- Foster synergies between ground- and space-based observatories to drive cutting-edge research.

These countermeasures will be translated into concrete strategic actions within this plan, which are detailed in subsequent sections to ensure their effective implementation and alignment with the Observatory's long-term objectives

4. MAIN GOALS 2025 - 2028

4.1 Objectives

This plan defines the strategic direction, goals, and priorities to turn our vision for the Observatories into a reality. The following four main objectives aim to strengthen OCAN's mission and its global leadership in astronomical research:

1. LEADERSHIP:

To secure OCAN's position as a global leader in observational astronomy for the next decade and beyond. OCAN is internationally recognized for hosting one of the most comprehensive arrays of telescopes, pioneering telescope instrumentation, and generating cutting-edge scientific discoveries that advance our understanding of the Universe. To maximize the scientific impact of OCAN facilities, we will prioritize the maintenance and optimization of existing instruments, telescopes, and infrastructure, ensuring the efficient use of observation time. Furthermore, advancing adaptive optics technologies, we will significantly improve the quality and precision of observations enabling cutting-edge research across a wide range of astronomical phenomena.

By establishing new international partnerships with space facilities, we will increase the impact of the data taken with ground-based telescopes and broaden the international community that uses the data of the OCAN facilities. We will enhance and expand the data archives to facilitate greater scientific exploration and discovery Additionally, we will strive to attract new world-class Research Infrastructures (RIs), including major future projects, while fostering a vibrant, collaborative community to harness upcoming scientific opportunities.

2. INTERNATIONALITY:

To establish a sustainable framework for international collaborations in operating world-class research facilities at OCAN. Currently, OCAN supports an international astrophysics community that includes 75 scientific institutions across 27 countries. Its global presence has been enhanced through the installation of new facilities and the implementation of high-speed fiber-optic networks, enabling the transfer of vast data volumes worldwide. Building on this foundation, we aim to develop new models of collaboration to ensure the long-term sustainability and growth of this world-class ICTS.

3. MODERNIZATION:

To enhance and modernize the supporting infrastructure and services available at the Observatories. This includes both basic and advanced logistical, safety, and technical support, tailored to meet the evolving needs of our user institutions and the scientific community. By introducing innovative operational modes and observing strategies, we will ensure OCAN remains a benchmark for excellence in astronomical research, providing the highest quality services to its users while enabling groundbreaking discoveries.

4. SUSTAINABILITY:

To ensure the long-term environmental, operational, and social sustainability of the Observatories. This includes minimizing their ecological footprint through renewable energy adoption and waste reduction, fostering regional economic growth through collaborations, and actively engaging with local communities to promote education and awareness about astronomy's importance.

4.2 Strategic Approach

This Plan will implement five specific strategies, carefully designed to address the critical priorities and opportunities of the Observatories for the 2025–2028 period. These strategies aim to strengthen scientific leadership, foster international collaboration, enhance infrastructure and support services, protect sky quality and the environment, and promote social engagement through education and skill development. Together, they provide a comprehensive framework to ensure the Observatories remain at the forefront of global astronomical research while contributing to sustainable development:

OCAN STRATEGIES 2025 2028
S1: ENABLE WORLD-CLASS RESEARCH The OCAN will continue to enable high-impact science by facilitating and supporting the installation of cutting-edge international telescopes, with major investments in their construction and instrumentation. Specific efforts will focus on hosting groundbreaking projects in key astrophysical research areas, such as Solar Physics, Planetary Systems, Astroparticles, Cosmology, Stellar Physics and Galaxy Formation and Evolution, ensuring the Observatories remain a global hub for excellence.
S2: ENHANCE THE SCIENTIFIC SUPPORT AND TECHNOLOGICAL CAPABILITIES AT THE OBSERVATORIES, INCLUDING THE JOINT DEVELOPMENT OF STATE-OF-THE- ART INSTRUMENTATION. The OCAN will advance its leadership in astronomical instrumentation by fostering collaboration with external research groups, pursuing international contracts, and attracting top talent. It will focus on developing state-of-the-art technologies, such as Adaptive Optics for existing and new OCAN facilities, and identifying commercialization opportunities in partnership with industry, keeping the OCAN at the forefront of global innovation in scientific instrumentation.
S3: CONTINUE TO IMPROVE THE QUALITY AND QUANTITY OF THE SERVICES AND SUPPORTING INFRASTRUCTURES AT THE OCAN. The OCAN will continue enhancing the quality and efficiency of its general-purpose infrastructures, including access roads, telecommunications, electricity, water, sewerage, and residences. These improvements will simplify logistics for scientific institutions and ensure optimal operational conditions for current and future research activities at the Observatories.
S4: SKY QUALITY AND ENVIRONMENT PROTECTION. The OCAN will maintain continuous monitoring of sky quality and adopt advanced technologies to address emerging needs. In addition to safeguarding the exceptional conditions of the Canary Islands' sky for astronomical research, the OCAN will prioritize preserving the surrounding natural environment, ensuring sustainable operations for current and future telescopes.
S5: STRENGTHENING THE SCIENCE, TECHNOLOGY AND ENGINEERING SKILLS AND IMPROVING SOCIAL PERCEPTION. The OCAN will keep working in inspiring and supporting students at all levels, raise public awareness of its scientific and technological achievements, and foster a deeper understanding of astronomy. By creating training opportunities and promoting involvement in cutting-edge research, the OCAN will contribute to regional capacity building, attract highly skilled professionals, and enhance societal appreciation for its mission.

Mapping Objectives to Strategies. The table below illustrates how each strategy aligns with the main objectives of the Observatories' Strategic Plan for 2025–2028.

Objective	S1: Enable World-Class Research	S2: Enhance Scientific Support	S3: Improve Infrastructure	S4: Sky Quality & Protection	S5: Strengthen Skills
Leadership	✓	✓	✓	✓	✓
Internationalization	✓	✓			✓
Innovation	✓	✓	✓		
Sustainability			✓	✓	
Nr of actions *(see next section)*	***8***	***8***	***8***	***5***	***2***

4.3 Actions

The proposed strategies are further broken down into a series of actions that will serve as a roadmap towards 2028. All the identified actions are broad in scope and are designed to be carried out throughout the lifetime of the Strategic Plan. Here below, and in priority order per category, we include a brief summary of each action. A more detailed description in the corresponding Annex 2:

S1. ACTIONS UNDER STRATEGY 1: ENABLE WORLD-CLASS RESEARCH

A1 OCAN/S1: The Cherenkov Telescope Array Northern Observatory (CTA-N)

CTA comprises two sites, one in the northern hemisphere at the ORM (CTA-N), and one in the southern hemisphere near ESO's Paranal site in Chile. The CTA-N baseline array for the next four years foresees the commissioning of 4 large-size telescopes (LST) and partial implementation of 5 mid-size telescopes (MST) at the ORM site. A1 will complete the 4 LST and the construction of the MST pathfinder, as well as the operations building.

A2 OCAN/S1: The European Solar Telescope (EST)

A2 will focus on advancing the IAC's contributions to the European Solar Telescope (EST), including the design of key instruments like the EMBER (EST spectropolariMeter Based on mirro-slicEr) and a multi-conjugate adaptive optics (MCAO) system testbed. EST plans to start construction activities during the timeline of this Strategic Plan.

A3 OCAN/S1: Tenerife Event Horizon Telescope (EHT) Antenna (TEA)

A3 supports the installation of a new 13-meter radio antenna at the Tenerife Observatory (TEA) for the ngEHT. The antenna will enhance the resolution, sensitivity, and frequency capabilities of the original EHT, enabling simultaneous observations at 86, 230, and 345 GHz. This enhancement will contribute to advancing the scientific understanding of EHT´s main black hole targets: Sagittarius A (SgrA) and M87

A4 OCAN/S1: The Small-ExoLifeFinder (SELF)

A4 will involve completing the "cophasing" laboratory for the Small-ExoLifeFinder (SELF) prototype at IACTEC. The research aims to develop interferometry systems for large optical telescopes capable of detecting life on nearby exoplanets. The ICTS funding will support the development and demonstration of key optical and control technologies for the SELF telescope.

A5 OCAN/S2: La Palma (LPI) and Tenerife (TFI) Interferometers

A5 is centred on developing the La Palma and Tenerife Interferometers, which will utilize advanced Single-Photon Avalanche Diode (SPAD) sensor technology, time synchronization, and artificial intelligence to achieve ultra-precise optical astronomy and communications. Utilizing the five largest telescopes at ORM (NOT, TNG, GTC, WHT, and INT), including the GTC-INT baseline of 1.5 km, will be critical for detailed studies of extreme phenomena, including black hole accretion disks, millisecond pulsars, and ultra-rapid transient events.

A6 OCAN/S1 IAClink, facility for R&D in Free-Space Optical Communications

A6 plans to establish advanced facilities at the La Palma and Tenerife Observatories to further support classical and quantum optical communications. The unique 144 km horizontal atmospheric configuration at these sites, unmatched globally, offers ideal conditions for testing optical links, aiding in technologies advances, including quantum cryptography.

A7 OCAN/S1 Dark Photons & Axion-Like particles Interferometer (DALI)

A7 will aim to use DALI, equipped with a superconducting magnet similar to those used in magnetic resonance imaging (MRI), to enable the first direct detection of dark matter, focusing on axions and paraphotons, while also searching for high-frequency gravitational waves. This setup has the potential to surpass the frequencies and sensitivity of current axion observatories in the EU, Australia, Asia, and the USA.

A8 OCAN/S1:New Robotic Telescope (NRT)

A8 will continue the definition phase for of IAC´s tasks for the NRT, while the project consolidates the contributions of the international partners. This will include the fabrication of optical components, development of telescope control systems, and the design of an advanced instrument with both photometric and spectroscopic modes for the NRT, enhancing Spanish astronomical research.

S2. ENHANCE THE SCIENTIFIC SUPPORT & TECHNOLOGICAL CAPABILITIES AT THE OBSERVATORIES, INCLUDING THE JOINT DEVELOPMENT OF STATE-OF-THE- ART INSTRUMENTATION

A9 OCAN/S2: Implementation of a Laser Guide Star Launch System

Laser Guide Star (LGS) based Adaptive Optics (AO) systems are standard at many large telescopes worldwide and are included in the new generation of extremely large telescopes. While at the OCAN, various telescopes have AO at different levels and have tested LGS systems to various degrees, no LGS+AO has been fully implemented and offered to the community at OCAN facilities. This action will take the necessary steps to ensure the required technologies for LGS+AO are available at the OCAN. This major upgrade is necessary to duly support the coming era of instruments at the OCAN.

A10 OCAN/S2: Design, construction and scientific exploitation of astronomical instruments for large telescopes.

The IAC will continue to design, construct, and scientifically exploit advanced instrumentation for large telescopes, reinforcing its leadership in optics, mechanics, and electronics. Future efforts will focus on expanding technical capabilities through new investments in infrastructure and human resources. The IAC will enhance its role in international consortia, ensuring its participation in major telescope projects, including the potential installation of the Thirty Meter Telescope (TMT) in La Palma. To achieve these goals, the IAC will seek funding to increase technical staff, support project management, and cover costs related to prototype development, laboratory testing, and international collaboration.

A11 OCAN/S2: Upgrading TCS for enhanced time-domain astronomy observations

A11 contemplates some changes and updates for the TCS, including new domes to prevent failures and structural modifications to meet current regulations and enable enhanced, stable, long-term observations in time-domain astronomy, such as tracking near-Earth asteroids, monitoring variable starts, and detecting exoplanets.

A12 OCAN/S2: Improvements and maintenance of the High Accuracy Radial Velocity Planet Searcher 3 (HARPS3) room of the Issac Newton Telescope (INT)

HARPS3 is the next generation instrument for the 2.5m Isaac Newton Telescope (INT) located at the ORM. The IAC contribution to the HARPS3 project includes the preparation and conditioning of the Coudé room and thermal enclosures of the instrument.

A13 OCAN/S2: Advancing technologies of the Cosmic Microwave Background Laboratory (CMBLab)

The CMB group at the IAC leads the QUIJOTE and Tenerife Microwave Spectrometer (TMS) experiments, which corresponds to the CMBLab at the Teide Observatory. In order to push forward in the achievement of the CMBLAB goals, the main proposed actions are related to provide investments for a W-band (80-110 GHz) camera with KIDs and to enhance the Digital Acquisition System (DAS) for the existing and planned QUIJOTE telescopes as well as the TMS.

A14 OCAN/S2: Spectroscopic Transient Array Explorer (STARE)

A14 intends to create STARE, a high-throughput spectrograph with wide spectral coverage based on a two-arm (blue and red) design using Volume Phase Holographic (VPH) grisms. The spectrograph will enable optical spectroscopy of transient astronomical events, including novae, supernovae, kilonovae, gamma-ray bursts, tidal disruption events, changing-look Active-Galactic Nuclei (AGNs), and blazars.

A15 OCAN/S2: Multicolor Simultaneos Short-wavelength Infrared Camera (MUSSIC)

A15 aims to develop MUSSIC, a three-color simultaneous short-wavelength infrared (SWIR) camera designed for one of the Nasmyth foci of the 2-meter TTT telescope. It will provide imaging in the Y, J, and H bands using dichroic mirrors to separate light into different wavelength channels, enabling precise photometry of very red substellar objects.

A16 OCAN/S2: MUlticolor Camera (MUC)

A16 plans to develop a six-color high-sensitivity charge-coupled-device (CCD) camera for one of the Nasmyth foci of the 2-meter TTT telescope. With filters spanning u, g, r, i, zs, and Y bands, this camera will deliver high signal-to-noise-ratio (SNR) imaging to address the lack of general-purpose instruments for rapid-response observations of newly discovered objects.

S3. ACTIONS UNDER STRATEGY 3: CONTINUE TO IMPROVE THE QUALITY AND QUANTITY OF THE SERVICES AND SUPPORTING INFRASTRUCTURES AT THE OCAN

A17 OCAN/S3: Enhancing the data archive and management of the OCAN

This action aims to establish a data center at the IAC for the storage, processing, and distribution of astronomical data from OCAN facilities, numerical simulations led by IAC researchers, and international collaborations in which the IAC plays a key role, ensuring global and open accessibility. This initiative will create a dedicated unit at the IAC, in partnership with the Spanish Virtual Observatory, to develop advanced tools for astronomical data processing and enhance its scientific impact across all areas of astrophysics.

A18 OCAN/S3: Sanitation, treatment and discharge of wastewater from the Teide Observatory

A18 seeks to modernize the wastewater management system at the Teide Observatory to enhance sustainability and reduce environmental impact. The plan involves a four-phase project to design, implement, and operate a new, centralized sewage system for the Teide Observatory. By replacing isolated wastewater treatment facilities with a more integrated solution, this initiative will promote environmental responsibility while supporting future growth and improving operational efficiency. This action is a request of IAC´s CCI.

A19 OCAN/S3 Expansion and Reinforcement of the Internal Optical Fiber Network at La Palma and Tenerife Observatories

A19 aims to reinforce and expand the internal optical fiber network at the observatories of La Palma and Tenerife to ensure reliable, redundant connectivity. The expansion will address current capacity limitations and prepare for future scientific projects, improving telescope connections and network redundancy for stable, high-speed, low-latency communication.

A20 OCAN/S1 Infrastructure Development for the Thirty Meter Telescope at ORM

Over the next four years, efforts will focus on essential civil works to support the TMT site at the ORM, subject to the final selection that considers La Palma as the alternative site to Mauna Kea (Hawaii). This includes constructing and upgrading access roads and support infrastructure.

A21 OCAN/S3: Expansion and modernization of data processing infrastructure at OT

A21 aims to expand and modernize the data processing infrastructure at the OT to keep pace with the increasing digital demands of the OCAN. As the need for low-latency communications and real-time data processing grows, a new Data Processing Center (DPC) will be established at OT. This center will cater to the growing computational needs of the IAC and its users, enabling the observatory to handle next-generation, data-intensive scientific research while maintaining operational efficiency.

A22 OCAN/S3 Improvement of the OCAN common services buildings

The action focuses on upgrading the Common Services buildings at the Observatorios de Canarias to improve infrastructure, energy efficiency, and accessibility while aligning with current regulations. Key improvements include refurbishing accommodation, updating electrical and water systems, and enhancing maintenance facilities. These upgrades will create a better working environment for scientists and technicians while reducing the observatories' environmental impact.

A23 OCAN/S3 Electronics and mechanics workshops at the Teide Observatory

A23 proposes the creation of specialized electronic and mechanical workshops at the OT to meet its growing demands for instrument integration and maintenance. By refurbishing existing buildings, the observatory will gain the necessary facilities to conduct complex repairs, integrate new instruments, and maintain systems, ensuring that its equipment remains operational at all times.

A24 OCAN/S3: Expansion and modernization of data processing infrastructure at ORM

A24 aims to expand and modernize the data processing infrastructure at the ORM to keep pace with the increasing digital demands of the OCAN. As the need for low-latency communications and real-time data processing grows, a new DPC will be established at ORM. This center will cater to the growing computational needs of the IAC and its users, enabling the observatory to handle next-generation, data-intensive scientific research while maintaining operational efficiency.

S4.SKY QUALITY AND ENVIRONMENT PROTECTION

A25 OCAN/S4: Characterization of the boundary layer and mid-troposphere of the OCAN

A25 aims to enhance atmospheric characterization at the observatories of La Palma and Tenerife by using drones equipped with radiosondes to capture high-resolution vertical profiles of key atmospheric parameters, including pressure, temperature, wind, and humidity. This will help improve the understanding of the boundary layer and mid-troposphere conditions, vital for the observatories' scientific competitiveness. The data collected will support ongoing research and attract new projects by providing accurate atmospheric data for better observational conditions and forecasting.

A26 OCAN/S4 Environmental analysis and monitoring plan for the ORM and OT)

This action will focus investment in two complementary issues: regulations (knowledge & enforcement of environmental regulations affecting the OCAN) and the application of measures to ensure environmental and sustainable management in accordance with environmental awareness, including the preparation of initial study, scope and targets, elaboration of Environmental Monitoring Plan, updating the waste plan for OCAN, development of the recycling point’s area for temporarily, and centralized management for the various institutions and facilities operating in the OCAN.

A27 OCAN/S4: Installation of a photovoltaic park at the Teide Observatory. Action to improve sustainability, energy savings and efficiency

A27 action aims to enhance sustainability at the OT by installing a 200KWp photovoltaic park on the roofs of the Residence, Common Services buildings, and parking lots. This initiative will improve energy efficiency, reduce fossil fuel dependence, and make the observatory's common buildings nearly self-sufficient. The installation will be phased over three years, covering different areas progressively. This development aligns with the observatories' commitment to environmental responsibility and energy savings.

A28 OCAN/S4: Energy efficiency savings in buildings of the Observatorio del Teide (waterproofing

A28 aims to improve energy efficiency and sustainability at the OT by waterproofing roofs and upgrading insulation in key buildings. Many structures, built over 20-30 years ago, suffer from water leaks and poor thermal protection, leading to excessive energy use. The action will focus on waterproofing the roofs of several facilities, along with replacing windows and access doors to improve insulation. These upgrades will reduce energy consumption, enhance comfort, and extend the lifespan of the buildings.

A29 OCAN/S4: Clean point and areas to collect and store temporarily and properly (waste management)

This action aims to improve waste management at the OT by creating clean points and designated areas for the temporary and proper storage of different types of waste. This will ensure safer and more efficient handling of hazardous and non-hazardous materials before their removal by authorized companies. The initiative will enhance selective waste collection, minimizing environmental impact and promoting sustainability.

S5. ACTIONS UNDER STRATEGY 5: STRENGTHENING THE SCIENCE, TECHNOLOGY AND ENGINEERING SKILLS AND IMPROVING SOCIAL PERCEPTION

A30 OCAN/S5: Boosting Human Capital for Excellence at OCAN

This action focuses on enhancing the skills and expertise of OCAN's scientific and technical personnel through continuous training, mentorship, and leadership development programs. It includes implementing testbeds for advanced instrumentation and adaptive optics systems, alongside fostering partnerships with local educational institutions to inspire STEM careers. These efforts aim to ensure OCAN's workforce remains at the forefront of innovation and excellence.

A31 OCAN/S5: Strengthening Social Engagement with OCAN

OCAN aims to deepen its connection with society through impactful science outreach initiatives, interactive virtual tours, and a dynamic presence on digital platforms. These efforts will highlight OCAN as a leader in sustainability, innovation, and scientific excellence. The initiative will also promote educational and communication activities, involving facilities like the ORM's visitors center, the Garafía Museum, and a potential visitors center at OT, while engaging the UC3 for broader impacts.

4.4 Resources

The proper implementation of the OCAN Strategic Plan for the period 2025-2028 is subject to the availability of the following financial resources:

1. The budget from the Spanish National Administration (Administración General del Estado, AGE) and from the Canary Islands' Regional Government (CAC), as part of the contributions to the IAC's budget. In 2024, it corresponded to 11,260 k€ (AGE) and 5,410 k€ (CAC).

2. Annual contributions from User Institutions (UIs) at the Observatories and service contracts with some UIs. On average, the IAC receives 2M€/year.
3. External funding obtained through collaborative agreements with the National Government.
4. External funding collected from International Consortiums fostering the construction of Major Research Infrastructures.
5. External funding obtained from competitive calls.

From the funding contribution provided by the Spanish National Administration (70%) and the Regional Government (30%) of the IAC's annual budget, around 2 million euros per year are devoted to the operation and functioning of the OCAN and the IAC telescopes. Moreover, UIs – apart from being directly invoiced for their differentiated expenses related to their presence at the observatories, such us electricity, water, telephone, etc. – contribute in solidarity to the undifferentiated common costs, such as management, telecommunications infrastructure, safety, etc

In total, around OCAN uses **5 million euros from the annual budget for the operation of the Observatories and IAC telescopes**, allowing to cover properly all the ongoing actions related to the regular operation of the facilities. Additional funding is required for the development of new Research Infrastructures, forefront instrumentation and other strategic investments.

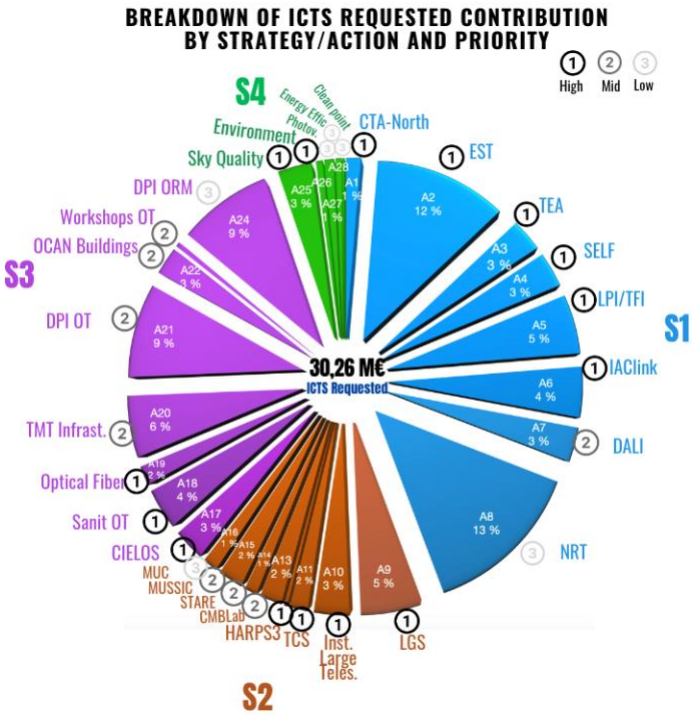
4.4.1 Human resources strategy, including gender dimension.

A total of 53 people worked full-time or part-time at the IAC during 2024 for operating the Observatories (present and futures facilities, as well as in support infrastructures and services). In total, they accounted for 40 full-time equivalent (FTE), devoted to regular operation of the OCAN or to execute, coordinate and supervise ongoing actions related with the OCAN. On the other hand, new major RIs are in their respective implementation and preparatory phases, concentrating a total of 31 FTE staff per year from 2024 onwards. In addition to this workforce, we expect to recruit new staff for the implementation of other strategic activities subject to external funding availability. According to the actions described, this additional staff would represent at least 12 FTE from 2025 onwards.

The table on the next page summarizes the human resources plan for the reference period:

Group	Profile	2025	2026	2027	202	Extra
Permanent staff	Researchers	11	11	11	11	*11*
	Engineers &	18	18	18	18	*18*
	Management/support	24	25	26	27	*28*
	Total staff	53	54	55	56	*57*
	FTE	*40*	*41*	*42*	*44*	*45*
New staff for development of new Research Infrastructures	Researchers	0	0	0		*0*
	Engineers &	27	27	27	27	*27*
	Management	4	5	5	5	*5*
	Total staff	31	32	32	32	*32*
	FTE	*31*	*32*	*32*	*32*	*32*
Temporary staff for the implementation of other strategic actions	Researchers	4	4	4	4	*4*
	Engineers &	15	18	18	18	*18*
	Management/support	4	4	4	4	*4*
	Total staff	23	26	26	26	*26*
	FTE	*12*	*26*	*26*	*26*	*26*
	Total	**107**	**112**	**113**	**114**	***115***
	Total Full-Time equivalent	***94***	**99**	**100**	***102***	***103***

4.4.2 Financial strategy



The financial strategy for the Canary Islands Observatories' Strategic Plan 2025–2028 is designed to secure the necessary resources to support the observatories' operations, personnel, and the development of new initiatives, with a special emphasis on high-priority ones (see figure on the right). This strategy will leverage a combination of public and private funding sources and agreements with the UIs.

1. Public Funding Opportunities

The IAC will actively participate in key public funding programs at regional, national, and European levels, such as:

- Horizon Europe (2021–2027): Leveraging the IAC's experience with European Framework Programmes to secure funding for international projects and initiatives, including the European Solar Telescope (EST) and other Large Institutional Projects
- Spanish Science, Technology, and Innovation Strategy (EECTI 2021–2027): Aligning with Spain's national RDI strategy to enhance synergies with EU initiatives.
- New Canary Islands' RIS3 (2021–2027): Maximizing access to ERDF for RDI investments in the Canary Islands.

These programs will provide critical funding for infrastructure, research, and innovation activities aligned with the strategic goals of the Observatories.

2. International Agreements and Partnerships

Existing international agreements with partners such as MAGIC, LST, and other major consortia contribute approximately 2M€ annually to the operational costs of the observatories. Additional partnerships with institutions like the University of Leuven, Kiepenheuer Institute for Solar Physics, and INAF further enhance research and training programs, providing an estimated €275,000 annually during the plan period.

3. Private Sector Engagement

The IAC will strengthen collaborations with private entities to secure additional funding, building on successful partnerships. There are examples of private entities that have signed agreements with the IAC to install state-of-the-art robotic telescopes at the OT. This partnership represents a landmark success in leveraging private investment to enhance OCAN's infrastructure and scientific capabilities.

The ICTS OCAN is 100% publicly owned infrastructures. Similarly, the outcome of the actions included in this strategic plan, such as instrumentation or data products, are publicly owned.

4. Integration and Alignment

The financial strategy emphasizes the integration of funding efforts across all available sources to maximize resource efficiency. By combining these approaches, the financial strategy will ensure the sustainability and growth of the Observatories, allowing them to maintain their position as world-class research facilities while adapting to future challenges. The table below summarizes by strategies and actions the breakdown of the total budget and requested funding under the current Strategic Plan (*a detailed Investment* Plan is available in the Annexes). A considerable amount of the required funding is needed to ensure our participation in large institutional (CTA, EST, etc.) and other forefront astronomical facilities.. The permanent staff is not included in the total or requested budget.

FUNDING DISTRIBUTION FOR THE PROPOSED PRIORITY ACTIONS

Strategies /Actions	Priority	Total (€)	ICTS Req. contribution (€)
S1: ENABLE WORLD-CLASS RESEARCH			
A1. Constructions of the Cherenkov Telescope Array Northern Observatory (CTA-N) at the ORM	**1**	15.000.000 €	400.000 €
A2. The EST spectropolariMeter Based on mirro-slicEr (EMBER) and Multi-Conjugate Adaptive Optics (MCAO) system of the European Solar Telescope (EST)	**1**	4.193.495 €	3.564.470 €
A3. The Tenerife Event Horizon Telescope (EHT) Antenna (TEA)	**1**	1.000.000 €	850.000 €
A4. Beam combining interferometry for the Small ExoLife Finder (Small ELF) telescope	**1**	1.066.900 €	906.865 €
A5. La Palma (LPI) and Tenerife (TFI) Interferometers	**1**	1.782.352 €	1.515.000 €
A6. IAClink facility for R&D in Free-Space Optical Communications	**1**	1.500.000 €	1.275.000 €
A7. Enabling the ultra-sensitive search for dark matter with the Dark Photons & Axion-Like particles Interferometer (DALI)	2	1.015.000 €	862.750 €
A8. The 4-meter New Robotic Telescope (NRT)	3	4.745.000 €	4.033.250 €
S2: TO ENHANCE RTD SUPPORT TO THE OBSERVATORIES			
A9. Integration of a Laser Guide Star Facility (LGS) at the ORM	**1**	1.800.000 €	1.530.000 €
A10. Design, construction and scientific exploitation of astronomical instruments for large telescopes.	**1**	1.077.500 €	916.000 €
A11. Upgrading Telescope Carlos Sánchez (TCS) for time domain astronomy	**1**	551.300 €	468.605 €
A12. Improvements of the High Accuracy Radial Velocity Planet Searcher 3 (HARPS3) room of the Issac Newton Telescope (INT)	**1**	100.000 €	85.000 €
A13. Advancing technologies of the Cosmic Microwave Background Laboratory (CMBLab)	2	685.500 €	582.675 €
A14. The Spectroscopic Transient Array Explorer (STARE)	2	415.000 €	335.000 €
A15. Multicolor Simultaneous Short-wavelength Infrared Camera (MUSSIC)	2	785.000 €	660.000 €
A16. "MUC". Multicolor Camera at TTT 2m for Follow-Up Atlas/Vera Rubin Discoveries.	3	525.000 €	400.000 €
S3: IMPROVE SERVICES AND SUPPORTING INFRASTRUCTURES AT THE OCAN			
A17. Enhancing the data archive and management of the OCAN	**1**	1.000.000 €	850.000 €
A18. Sanitation, treatment, and discharge of wastewater from the OT	**1**	1.300.000 €	1.105.000 €
A19. Expansion and reinforcement of the internal optical fiber network at the OCAN	**1**	615.000 €	522.750 €
A20. Infrastructure development for the Thirty-Meter Telescope (TMT) at ORM	2	2.000.000 €	1.700.000 €
A21. Expansion and modernization of data processing infrastructure (DPI) at OT	2	3.075.000 €	2.613.750 €
A22. Improvement of the OCAN common services buildings	2	900.000 €	765.000 €
A23. Electronic vacuum and mechanical workshops at the OT	2	150.000 €	127.500 €
A24. Expansion and modernization of data processing infrastructure (DPI) at ORM	3	3.075.000 €	2.613.750 €
S4: SKY QUALITY AND ENVIRONMENT PROTECTION.			
A25. Boundary Layer and Mid-Troposphere characterization at OCAN with Rotary-Wing Drones	**1**	1.100.000 €	935.000 €
A26. Environmental analysis and monitoring plan for the ORM and OT	**1**	210.000 €	178.500 €
A27. Installation of a photovoltaic park at the Teide Observatory. Action to improve sustainability, energy savings and efficiency	3	300.000 €	255.000 €
A28. Energy efficiency savings in buildings of the Observatorio del Teide (waterproofing)	3	200.000 €	170.000 €
A29. Clean point and areas to collect and store temporarily and properly (waste management).	3	50.000 €	42.500 €
S5: TO STRENGTHEN RTD SKILLS, ICTS OPERATION AND VISIBILITY			
A30. Boosting human Capital for excellence at OCAN	**1**	300.000 €	0 €
A31. Strengthening social engagement with OCAN	**1**	250.000 €	0 €
Total general		**50.767.047 €**	**30.263.365 €**

HIGH PRIORITY (1): 49,9%. MEDIUM PRIORITY (2): 25,3%. LOW PRIORITY (3): 24,8%.

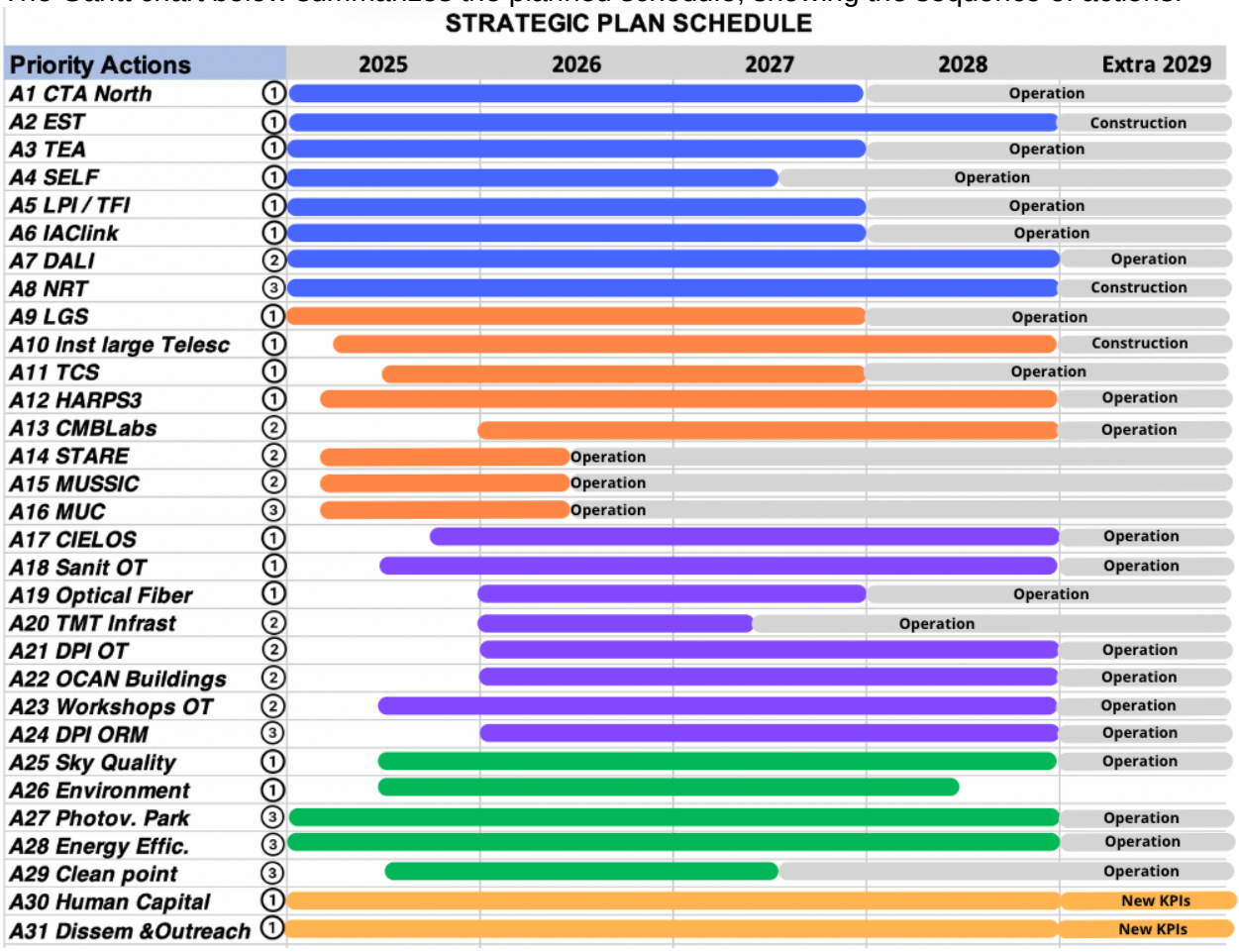
The optimization of existing resources annually provided by the IAC Consortium administrations and by Observatory partners, as well as the appropriate strategy as described above, for the preparation and submission of specific proposals under the funding programmes– individually or in collaboration with our international partners – represent basically the resources work-plan to be followed by the IAC for the successful implementation of the Strategic Plan.

5. PLANNING AND ASSESSMENT

5.1 Planning

The specific strategies identified to accomplish the four objectives of this Strategic Plan are broken down into 31 specific actions. Our strategic goals are challenging, but with a strong performance focus, we are confident in achieving significant progress during this period. We embrace transparency and accountability, committing to leading and identifying best practices for communicating both successes and setbacks to stakeholders. Proper execution of these actions requires considering available internal resources—people, materials, technologies, funds, etc.—and those dependent on external funding.

The Gantt chart below summarizes the planned schedule, showing the sequence of actions:



As part of the strategic planning, specific progress reports for each action will be produced including major achievements and possible deviations of the workplan.

5.2 Assessment

Since the Strategic Plan will be continuously monitored, and new opportunities for this ICTS may arise during the 4-year period, the set of proposed actions is subject to modifications and reprioritization, potentially including new ones as the international landscape evolves. A case in point will be a collaboration with the US next generation GONG network that has received the maximum priority in the recent Heliophysics Decadal Survey given its relevance for Space Weather research and operations. Flexibility to adapt our work plan to emerging opportunities is essential for the OCAN. The IAC has an adequate number of committees and structures, at various levels, to ensure the proper follow-up of the 2025–2028 Strategic Plan. The IAC Directorate meets weekly to oversee all activities related to the research centre. Additionally, twice a year, immediately before the meetings of the International Scientific Committee (CCI)—typically in April and October—a comprehensive monograph on the Observatories is prepared. Similarly, the various CCI subcommittees, which meet with the same periodicity, address specific topics of special relevance for the observatories:

- **ORM/OT Common Services Committees**: Advisory body to the IAC and the CCI on matters related to the operation of the ORM/OT observatories where all UIs participate.
- **SUCOSIP**: Provides advice to the IAC and the CCI on site characterization and the protection of sky quality for astronomical research. It also evaluates the impact of new proposed facilities.
- **SUCOSIP Lasers WG**: Advises on the use of lasers for astronomy and develops the laser traffic control system protocol at OCAN.

In addition to these committees, there are two on-site managers at the ORM and OT observatories responsible for day-to-day activities under a Responsible for the Observatories coordinator. Given the importance of the Strategic Plan, the Director of the IAC has assigned its management to the Technology Transfer and Institutional Actions Office (OTAI), which reports directly to the Director's Office and has extensive experience in managing strategic projects and monitoring activities. To support this effort, the recruitment of a dedicated Project Manager is anticipated, specifically to oversee the Strategic Plan.

Also under the Director's Office, the Sky Quality Group serves as the institutional link at the IAC, coordinating efforts across departments to characterize and protect the Canarian sky for astronomy. The respective departments at the IAC or its UIs will be directly responsible for implementing the planned activities. The Project Manager, in close coordination with the on-site managers, will report to the IAC Directorate and the CCI, through the relevant subcommittees as needed, on the progress of the Strategic Plan and any required corrective actions.

The Project Manager will prepare a progress report every four months, ensuring the proper execution of the Plan. This report will be presented to the IAC Directorate, which will decide whether to inform the relevant subcommittees and the CCI immediately or wait until the next scheduled meeting.

Additionally, the Project Manager will oversee the preparation and implementation of a Risk Management Plan, considering the specificities of each action. For every identified risk, an impact statement and, at least, one preventive or mitigating measure will be defined. If these measures prove insufficient to reduce the risk to an acceptable level, the project will take further steps to identify and implement appropriate corrective actions.

At a higher level, the IAC Governing Body (Consejo Rector) is responsible for approving the IAC Annual Action Plan, which includes the OCAN. A Scientific Advisory Committee[1] composed of five scientists of international prestige, provides opinions and recommendations to the Governing Body on the achievements and long-term activities of the research centre and its observatories. As part of this top-level follow-up, the OCAN Strategic Plan will be rigorously reviewed and monitored.

Key Performance Indicators (KPIs)

To measure OCAN's performance, a set of specific indicators has been proposed. While some indicators pertain to individual actions, most will reflect achievements across multiple initiatives. The primary criteria for monitoring the Strategic Plan include:

Number of new collaboration agreements and renewals of existing ones.
Number of new facilities and upgrades.
Number of proposals received for observing time, access provided, and oversubscription rates.
Number of service programmes carried out.
Number of facilities offering remote observing.
Number and ratio of successful funding proposals related to the Strategic Plan.
Number of publications in peer-reviewed journals.
Number of visits (e.g., open days), publications, and outreach materials.
Number of training activities.
Number of activities organized for the public sector, including tourism.
Number of actions focused on nature preservation and social awareness.
Number of workshops and conferences.

[1] https://www.iac.es/en/about-us/scientific-advisory-committee