ANNUAL REPORT 2023

Agenzia Spaziale Italiana

ANNUAL REPORT 2023
Contents

Looking to the future with confidence

TEODORO VALENTE
President, Italian Space Agency

> ***ASI promoted the culture of science and education on space through projects, events and educational programmes, all designed to inspire the public - especially our youngest audience - to look beyond the borders of our planet.***

Making a point of the progress in space is not always easy. In an industry without limits or boundaries, the difference between one year and the next is contingent: it is better to think in terms of stages and periods of transition than years. What most characterises the current time is the fact that we are witnessing the leap towards a third millennium full of expectations, for the industry as a whole and for the Agency itself. To speak in terms of years, last year gave us the privilege of participating in important stages of missions which will leave their mark in the history of Italian and international space exploration: from the early successes of ESA's Euclid mission, which will study cosmic energy and dark matter, to the launch of the JUICE probe to study Jupiter's icy moons.

But another thing that makes the Agency's work stand out is its constant commitment to sharing its knowledge of space among citizens and young generations. In 2023 ASI promoted the culture of science and education on space through projects, events and educational programmes, all designed to inspire the public - especially our youngest audience - to look beyond the borders of our planet turning what may be an amateur interest into a choice for their studies and careers.

As for the present, 2024 will be marked, among other things, by two important events: the celebrations of the 60th anniversary of the launch of Italy's first satellite, the 'San Marco', which made Italy as one of the world's first space powers, and the 75th International Astronautical Congress, to be held in Milan on 14-18 October, co-hosted by the Agency together with AIDAA and Leonardo. These are more than memorable events: they are opportunities to renew our mission to support the development of Italian space policy, relationships, science and technology worldwide. Such occasions include the contribution of ASI and the Italian space industry to the Mattei Plan for Africa, thanks to which Italy plays a leading role as a bridge between Europe and the African continent.

Looking at the future, I am confident that our commitment and determination will continue to guide us along our path of excellence, innovation and sustainability. The Italian Space Agency is well-equipped to face the great challenges of science, technological development, space diplomacy, and the dissemination of the culture of space in synergy with its many partners.

With the current renewed attention to the industry, Italy with ASI is ready to expand its leading role in the peaceful international competition for space.

The Italian Space Agency: an identikit

The Italian Space Agency (ASI) was established in 1988 to promote, develop and disseminate scientific and technological research for space and aerospace.
It is the national research body tasked with coordinating and managing funding for all space activities, both nationally and in international collaborations, preparing and implementing Italy's space policy in accordance with the guidelines issued by the Prime Minister (or her representative) and the Interministerial Committee for Space and Aerospace Research (COMINT).

BOARD OF DIRECTORS

A new Board of Directors was appointed in 2023 with the following members:

TEODORO VALENTE, PRESIDENT

ELDA TURCO BULGHERINI, VICE-PRESIDENT

GIUSEPPE BASINI

MARICA BRANCHESI

STEFANO GUALANDRIS

MARCO LISI

LUISA RICCARDI

The global context

ASI is now one of the top six space agencies worldwide, a testament to Italy's prestigious position in the European and international space industries: it was the third country to independently launch a satellite, is the third largest contributor to the European Space Agency (ESA), after Germany and close to France, and one of the first signatories to the Artemis Accords for NASA's new lunar programme. Italy is one of the few countries in the world whose space agency is able to participate in any space industry application with its own value chain. ASI's diplomatic activity has enabled Italy to engage in major strategic collaborations with all major space agencies. One of the most remarkable results of such collaboration is the International Space Station, which houses astronauts, including Italian ones, in habitat modules of which more than 40% are made in Italy. The Agency brings together research organisations, public authorities, universities and private industry to promote the participation of the entire Italian scientific community. This synergy has led to major successes in Cosmology, Human and Robotic Exploration, Space Propulsion, Telecommunications, Satellite Navigation and Earth Observation.

OPERATIONAL SECTORS

- SPACE SCIENCE
- HUMAN FLIGHT
- EXPLORATION
- OPERATIONS
- TECHNOLOGIES
- EARTH OBSERVATION
- LAUNCHERS
- NAVIGATION
- TELECOMMUNICATIONS

ASI investees

ALTEC

Specialized in the international provision of engineering and logistical services in support of the operation and utilisation of the International Space Station, other orbiting infrastructure and space exploration missions.

SpaceLab

Engaged in research and development of new technologies and test facilities for the space transport sector, it was developed by ELV S.p.A.

e-GEOS

Established to develop commercial applications and services for Earth Observation, e-GEOS also operates the COSMO-SkyMed satellite constellation.

Edoardo Amaldi Foundation

Established in 2017 by ASI and the Hypatia Research Consortium, the Foundation promotes and supports scientific research into not-for-profit technology transfer. It also provides advisory and scouting services for the “Primo Space” venture capital fund.

ASI - the numbers

4
sites

Rome: headquarters
Matera: Centre for Geodesy and Remote Sensing
Malindi, Kenya: Broglio Space Centre, satellite data reception, telemetry and tracking
Cagliari, Sardinia: support Centre for interplanetary/lunar missions and radioscience operations

8
directorates

The organisation is divided into 8 management Directorates and a Strategic Area to ensure efficient operations in all sectors of the space industry

448
people

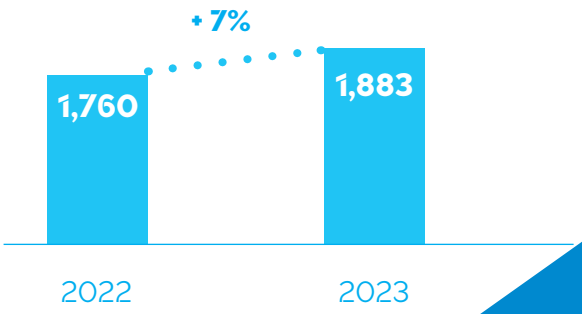
In late 2023, ASI had a staff of 448 people, of whom 433 have tenure, 9 are on fixed-term contracts, 5 are on research grants/appointments and 1 is currently seconded to another public authority

4
investees

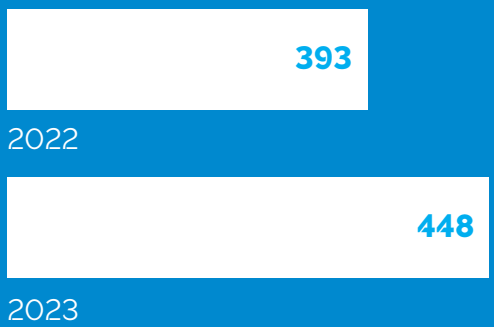
ASI has holdings in ALTEC S.p.A., SpaceLab (formerly ELV S.p.A) and e-GEOS S.p.A. and is a co-founder and partner of the E. Amaldi Foundation

ASI in continual growth

Budget (in millions of Euro)



Human resources



Some main themes of 2023

PNRR: LAUNCH OF CONTRACTS AND FIRST RESULTS

In 2023, contracts awarded to ASI under Italian Recovery and Resilience Plan (PNRR) funding continued according to schedule. As a result, all national contracts for the Space Factory 4.0 were awarded to ASI.

This programme will boost Italy's production and manufacturing capacity in the small satellite sector. The Space Factory, the foundation stone of which was laid in early 2024, will drive future private sector investment in the construction of satellite constellations and mega-constellations.

A contract was also awarded for the design, development and ground qualification of an innovative green fluid propellant, the "Multi-Purpose Green Engine", for future In-Orbit Servicing and Space Logistics applications.

As part of its PNRR-funded projects, ASI is also upgrading its Matera Space Centre laboratories to provide support, tools and services to all potential participants in the value chain. The Space Centre processes satellite data (from Earth Observation, Navigation, Telecommunication, Positioning) and supplements it with other data sources (drones, IoT sensors, web services, etc.), creating value-added products and using the resulting information.

By March 2023, all IRIDE programme contracts envisaged by the PNRR for the construction of the innovative Italian constellation of Earth Observation satellites had been stipulated, with the intent of offering on demand services for both commercial applications and public authorities. Awarded to ESA which, supported by ASI, has been commissioned to build IRIDE by 2025 with a view to operation in 2026, the project envisages the construction of a constellation of small and medium-sized satellites constellations. This project involves a large part of the Italian space industry, including a hundred or so private contractors, with the participation of many SMEs and major national players.

THE LUNAR ROBOTIC MISSION CONTROL CENTRE

Robots from Earth will explore the lunar soil, under the guidance of a control centre soon to be built in Turin. In December 2023, ASI and ALTEC signed a 3.5-million-euro contract for the initial design and construction of a Lunar Robotic Mission Simulation and Control Centre. This agreement is the kick off of a project that, 36 months from now, will see the Centre established on ALTEC's premises in the heart of Turin's emerging Aerospace City. The centre will complement ALTEC's existing operational facility, the ROCC (Rover Operation Control Centre), dedicated to Martian operations and simulations.

Space exploration activities have experienced a strong upturn in recent years, currently driven by the race to return to the Moon, with Italy acting as a strategic partner of both NASA, with its ARTEMIS programme, and ESA.

A NEW FOCUS ON RELATIONS WITH AFRICA

Italian President Sergio Mattarella's 15 March 2023 visit to the Broglio Space Centre has put Kenya and the Malindi space complex back on the list of our country's most important strategic assets, and given new impetus to a number of related industries and projects; especially those involved in the construction of a Regional Earth Observation Centre and the associated training requirements.

As part of this process of intensified cooperation, the President of ASI held a hearing at the Kenyan Parliament last autumn to set out the Agency's plans for the further development of the base, which is being expanded as an asset in the service of African countries.

Strategies for the space economy

In the current space economy, the public sector is responsible for encouraging innovative entrepreneurship in the space industry and, above all, facilitating private investment by reducing the technological barriers to entry into the market. Public authorities must therefore take action to improve the condition under which the market operates, draw up an investor-friendly regulatory framework, encourage the creation and roll-out of new financial instruments, and provide technical and operational support to innovative young private sector actors. With all the above in mind, the Italian Space Agency, thanks to the work of the Coordination of Strategic Area and New Space Economy OU (UAS), in 2023:

- signed a Collaboration Agreement with ISTAT for the construction of a satellite account intended to map the entire Italian space ecosystem, in order to quantify the real value of the national space economy for the benefit of all players, public and private
- set up 3 additional ESA Business Incubation Centres, extending the Italian network to 5 nodes in total (Rome, Turin, Milan, Padua and Brindisi)

Incubation: ESA BIC Italian network

2005	Partnership with Regione Lazio Lazio Innova: ESA BIC LAZIO
2021	ITT for e new BIC in Turin I3P Winner ESA BIC Torino
2023	3 new ESA BICs in Italy ESA BIC MILAN ESA BIC PADUA ESA BIC BRINDISI

- formalised its participation in the European *Spacefounders* Acceleration Programme, through a trilateral Memorandum of Understanding with CNES and UniBw (University of Munich), and issued a call for tenders for the Italian portion of the programme's operations

- has been actively engaged in fostering the entry of new players into the national space economy, making an important technical and managerial contribution to space-related acceleration programmes and space technology (Cassini Hackathon) and non-space technology (StartCup of the National Award for Innovation) competitions

- as part of its optional subscription to the ESA *ScaleUp* programme, authorised the launch of a European call for the first Italian technology transfer broker, to encourage the development of spin-in and spin-out solutions related to space and non-space technologies

- organised thematic meetings with its main counterparts in the finance industry (Italian and European) to promote contact with the Italian space ecosystem and facilitate, via its channels, matchmaking with space economy start-ups and SMEs

Acceleration: *Spacefounders* European program

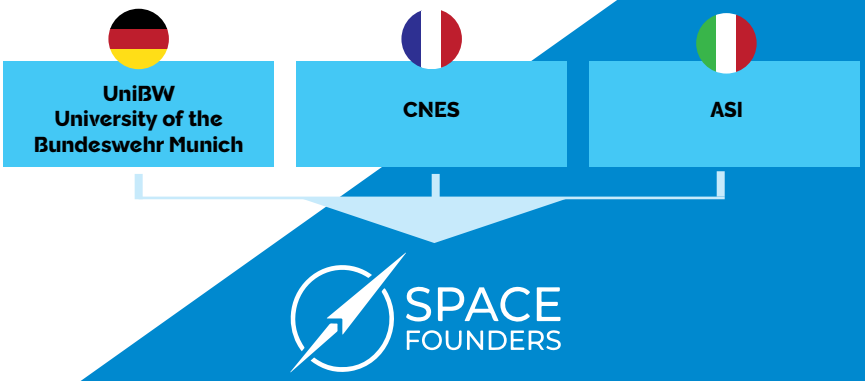
SPACEFOUNDERS MOU OFFICIALLY SIGNED IN 2023: **CNES, ASI, UNIßW**

MAY 2023: FIRST SPACEFOUNDERS DEMO DAY IN **ROME**

ITALIAN ITT FOR SPACEFOUNDERS: ON GOING PROCESS!

LAST SPACEFOUNDERS DEMO DAY: **7 DEC 2023 - BERLIN**

" WE ACCELLERATE EUROPEAN SPACE TECH STARTUPS"



SOCIO-ECONOMIC STUDIES

Given the results of the study concluded in November 2022 by the University of Milan on the direct impact of Earth Observation services and applications on the Italian GDP (as much as 0.9%), ASI decided to extend the survey in 2023 to all entire downstream sectors (telecommunications, navigation and integrated services). The Agency also commissioned the University to explore (taxonomy and examination of 3 case studies) space-related activities, i.e. activities which are not part of the space industry but which employ satellite technologies and data. The work will provide an analysis of the socio-economic benefits of the downstream space sector and related activities.

ROADMAPPING, PLANNING AND STRATEGIC DOCUMENTATION

2023 saw the consolidation of ASI's centralised planning processes, with the aim of structuring, rationalising and automating the identification and updating of the contents of the Triennial Action Plan (PTA). The UAS also participated in the start of work to draw up new government guidelines on space, providing scenario, sectorial and global trend analyses, which determine the positioning of the Italian industry in the international context.

RELATIONS WITH INDUSTRY, ASSOCIATIONS, RESEARCH BODIES AND ACADEMIA

The work conducted as part of the Permanent Business Round Table marked two important milestones for the future of the space sector:

- a survey of the main critical issues encountered by the industrial community in commercial space activities was launched, in order to outline the central principles of a future National Space Law

- the space policy strategy for the near future was better defined, with a focus on activities to support the internationalisation of companies (Mattei Plan for Africa) and the identification of all possible developments in space activities, also in relation to the opportunities offered by the PNRR.

2023
A YEAR OF SUCCESSES

January 23

ASI and Leonardo sign contracts for the payloads of the upcoming PLATiINO Earth Observation mini-satellite missions

March 2

ASI and NASA extend their collaboration in the field of Navigation: the Italian **LuGRE** receiver will go to the Moon on board the landing vehicle built by US contractor FireFly

March 16

Italian President **Sergio Mattarella** visits the ASI Broglio Space Centre in Malindi, Kenya

April 14

The launch of **JUICE,** ESA's mission to study the gas giant Jupiter and its icy moons with Italian instrumentation

June 12

The launch of the **Spei Satelles** mission: the CubeSat built by ASI with students from Turin Polytechnic carries a nanobook with a message of peace from the Pope

July 1

Euclid, kicks off the ESA mission's journey to explore the cosmic mystery of dark matter and dark energy. The mission carries Italian instruments

July 26

ASI and PoliMi sign an agreement for the **ORACLE** project to extract water from lunar regolith

August 10

ASI's **LICIACube** is voted CubeSat Mission of the Year at the AIAA SmallSat Awards

November 6-7

The Space Summit in Seville: Italy successfully supports ESA's goals of independent access to space, enhanced space exploration and sustainability

November 13

ASI and Thales Alenia Space Italia sign a contract to develop the **MPH** pressurised lunar surface housing module, as part of the **Artemis Agreements** with NASA

December 21

ASI and ALTEC sign a contract for the design and construction of a Lunar Robotic Mission Simulation and Control Centre in Turin

Directorate General

During 2023 ASI stood out for its directors' emphasis on efficient organisation. The objective of sound management has increasingly combined with that of effective articulation of administrative procedures, in order to promote the speedy roll out of management decisions.

With the appointment of the new Director General, Dr. Luca Vincenzo Maria Salamone, in 2023 the Agency's top management was completely overhauled.

ASI has seen a significant increase in the number of proceedings related in particular to the settlement of tenders financed through PNRR funds. However this workload was handled efficiently by the organisation's structures thanks also to its expanded staff.

ASI's Directorate General focused on three main areas of action during the year, all closely interrelated.

First and foremost, the continuation of staff recruitment, which consolidated workforce under the aegis of a multi-year resourcing plan, which is still ongoing. About this, more than 100 new staff members were taken on by the Agency in 2023, not only to replace staff entering retirement, but also to expand the ranks of the Directorates most directly involved in the implementation of the PNRR.

Secondly, the efficient management of the PNRR by ASI as a whole, headed up by its Directorate General, enabled the Agency to achieve the National Recovery and Resilience Plan's Italian and European targets and contribute to its national performance as a whole. Indeed, all scheduled contracts where stipulated by March, and most funded projects had entered implementation by the end of the year.

Finally, also spurred on by the newly designated Board of Directors and the new Directorate General , the Agency focused on speeding up the procedu-

res for formalising and managing its commitments, thus improving the overall efficiency of its activities. This was supported by the revision of the processes still in progress, also from a digital point of view, and a greater involvement of ASI management in shared analysis and planning.

ASI'S DIRECTORATE GENERAL WAS REPRESENTED OPERATIONALLY BY 8 DIRECTORATES IN 2023:

- SCIENCE AND RESEARCH DIRECTORATE
- PROGRAMMES DIRECTORATE
- INTERNATIONAL AFFAIRS DIRECTORATE
- INSTITUTIONAL COMMUNICATION DIRECTORATE
- HUMAN RESOURCES DIRECTORATE
- SECURITY DIRECTORATE
- IT, LOGISTICS AND DIGITAL TRANSITION DIRECTORATE
- ADMINISTRATION AND FINANCE DIRECTORATE

Science and Research Directorate: ASI's eyes on the future

The progress of space research has highlighted the need to bring together diverse and complementary scientific and technological disciplines, such as astrophysics, cosmology, the study of the solar system, biology, engineering and fundamental physics. This interconnection of diverse disciplines and research methodologies acts to enhance the Italian scientific community's sectoral expertise in the international arena.

The function of ASI's Science and Research Directorate (DSR) is to promote interdisciplinarity and to reinforce synergies between the scientific community, academia and industry, using European funding instruments and investing in culture with significant higher education activities. With its national and international programme scholarships, ASI grows the technical and professional skills of university students and young researchers, while guaranteeing the continuity of human resources for the space industry, thus increasing Italy's competitiveness and producing public value.

The Science and Research Directorate acts primarily by drawing up thematic roadmaps with a twofold purpose: to identify the main areas of interest in the respective sectors, assessing the state of the art and their potential for future development, and to identify any gaps with a view to acting to fill them.

workshops to understand, map out and raise awareness about Italian stakeholder communities and centres of excellence in areas in which ASI intends to invest, with the aim of assuming a role of strategic leadership in the near future

WITH THIS IN MIND, IN 2023 THE DSR DREW UP:

roadmaps relating to programmes in space weather, heliophysics, astrobiology and life sciences applied to space, for the enhancement and coordination of the Italian scientific community. Thematic roadmaps relating to astrophysics and the solar system are planned for the future

The DSR also manages numerous grants, many awarded via competitive tenders, thus expanding the community in dialogue with the Agency and supporting the development of new technologies for growing the Italian space economy: in particular, a call for lunar exploration payloads and technologies has been issued, and activities related to the multidisciplinary Research Day calls for proposals are underway, aimed at pioneering products for space exploration and Earth observation.

In 2023, the DSR also conducted projects in space geodesy, laser ranging and quantum communications, including in the laboratories at the Matera Space Centre's MLRO Observatory, to develop scientific space research proposals in collaboration with other centres/universities/institutions. This includes its contribution to the Einstein Telescope Infrastructure Consortium (ETIC) project, part of the PNRR, which envisages the construction of a next-generation ground-based gravitational wave observatory.

THE SCIENCE AND RESEARCH DIRECTORATE IS RESPONSIBLE FOR THE FOLLOWING INFRASTRUCTURES:

SARDINIA DEEP SPACE ANTENNA (SDSA)

Located near Selargius (CA), this provides navigation and communication services for Deep Space and Near Earth missions and robotic and human exploration, and also supports ambitious scientific experiments

SPACE SCIENCE DATA CENTRE (SSDC)

The Centre maximises the scientific ROI of programmes supported by the Agency.

Established in 2000, it promotes the use of data collected by scientific missions and programmes by merging and jointly analysing them.

In the course of 2023, the Centre participated in the calibration of the Euclid mission and the release of Gaia mission data. SSDC was the focus for the dissemination of the results of the LICIACube mission, an Italian contribution to the first asteroid deflection experiment, and supported the Italian community in characterising collision-prone asteroids, also via its participation in European projects (H2020 NEOROCKS)

RESEARCH DAY TENDERS

Research Day brings together innovative projects for cross-cutting technologies (hardware and software) in forward areas of space research.

In the field of human exploration, miniaturised and wearable devices for monitoring astronaut physiology, as well as sensorised structural units with thermal insulation properties made with *additive manufacturing* and nanophotonic-based radiation detectors are being developed to support extraterrestrial activities.

Software using artificial intelligence is being developed to enhance responses to cyber attack/defence scenarios and the quality of multi-sensor images, as well as models and algorithms for proximity manoeuvres (*Prox Ops*) - a critical element of many space and planetary exploration missions - by implementing digital twin architectures. These activities are collaborative efforts between public and private entities in an interdisciplinary framework, promoted and supervised by the Italian Space Agency.

THE LUNAR TENDER

In recent years, the Moon has once again become a focus of Space Exploration, thanks to its proximity to Earth. In the light of the upcoming construction of a lunar orbital station and permanent human settlements, the Moon will play a strategic role as an experimental laboratory and outpost for the exploration of Mars and more remote parts of the Solar System. To enhance Italian excellence in the science and technology employed in these new challenges, ASI has selected nine research projects through a call for funding:

- the development of technologies and prototypes for Power Production and Wireless Power Transmission

- the characterisation of the lunar surface and subsurface with a view to the development of outposts and in situ resource extraction/exploitation systems

- the development of bio-regenerative systems and biorefineries for resource recovery and waste recycling

THE EUCLID MISSION

2023 saw the start of Euclid mission observations, which studies dark matter and dark energy by observing billions of galaxies in the optical and near-infrared ranges. The VIS and NISP instruments will enable us to reconstruct a 3D map of the distribution of dark matter in the Universe and study the formation of large-scale structures.

The launch on 1 July from Cape Canaveral was followed by intense instrument acquisition, verification and calibration activities, with the Italian scientific community and ASI's Science and Research Directorate at the forefront, charged with coordinating the Italian effort and, via the SSDC, analysing the infrared images. The first images, released in November 2023, testify to Euclid's ability to make detailed observations of the deep Universe while covering a large region of sky. The first results on the Dark Universe will have to wait, but they promise to be exciting.

THE IXPE AND SOLAR ORBITER MISSIONS

The IXPE mission is revolutionising our view of the most extreme cosmic objects with its unprecedented ability to measure the polarisation of X-ray emissions. An important discovery was the variability of the polarisation angle of emissions from galaxy MRK 421, observations of which highlighted the helical structure of the magnetic field in the relativistic jet emanating from the supermassive black hole at its centre.

The Solar Orbiter mission is providing important information on the mechanisms of acceleration of the solar wind and energy transport in the atmosphere of our star. A fundamental element of the mission is the Italian Metis coronagraph which manages to observe the Sun from close range, acquiring data with an unprecedented level of detail. The extraordinary images obtained by the instrument during the passage to perihelion showed for the first time how the solar corona consists by a set of thin plasma structures heated by their own turbulence.

Programmes Directorate: the growth of ASI in the domain of space

2023 was a year of major initiatives in all domains of space, also characterised by intense negotiations in all areas of the ASI Programmes Directorate. In particular, all PNRR-related initiatives planned for the first quarter of 2023 were concluded, with full completion of the European milestone in March, negotiations related to the Supplementary Fund and the ASI Triennial Action Plan were concluded, and the operations of the ESA Executive Board were reviewed, as required by the end-of-2022 ministerial meeting.

Space Surveillance and Tracking (SST) activities received a major boost thanks to the stipulation of contracts funded by the PNRR for the construction of a network of Flyeye telescopes, dedicated to the surveillance of objects in HLEO and MEO/GEO over the entire celestial sphere, and a new debris observation and tracking laser, as well as quantum communications.

At the same time, the "HW and SW Infrastructure" (IHS) project was launched, based on a dual cloud infrastructure and dedicated to the provision of **Space Traffic Management (STM)** services. The IHS will coordinate ASI's space monitoring sensors, including the Flyeye network, the SPADE telescope and the projected space debris laser station (SDLR). This infrastructure will collect a database of observations and process them to generate a catalogue of orbital objects; it will also provide collision avoidance, fragmentation and atmospheric re-entry services. The cloud will house the infrastructure of in-orbit servicing missions and, over the medium term, will be expanded to accommodate the midstream of Italy's space systems.

In the area of **Telecommunications and Navigation**, last year ASI launched calls for R&D into new technological capacity for these issues, which led to the stipulation of around 10 contracts and agreements with the public authorities; the Agency held numerous meetings with the private sector (around 180 companies) and approved 87 preliminary investigations under ARTES.

As regards Navigation in particular, a joint workshop for the realisation of applications using the PRS signal was launched.

In 2023, ASI drew up two major contracts relating to **Space Access** and **In-Orbit Servicing**. The former will enable the development of an orbital engine for use both as the last stage of a launcher (in its initial version) and for In-Orbit Servicing missions; the latter is preparatory to the national mission to enable orbital interoperability capacity in the areas of de-orbiting, relocation, refuelling, assembly and manufacturing.

In the field of **Nanosatellites**, Italy continues to hold a position of leadership: last year, ASI launched no less than 15 phase A/B studies out of the 20 selected in the "Future CubeSat Missions" call; four of these missions have already successfully completed Preliminary Design Review, and will progress on to design and construction in the next few months.

In 2023, the ALCOR programme took centre stage at the ESA's "6th CubeSat Industry Days" workshop, the most important European showcase for the industry.

The IPERDRONE.0 programme was definitively consolidated, with launch now scheduled for the first half of 2024.

In June 2023, Spei Satelles CubeSat 3U was launched from the Vandenberg launch complex, having been built in just five months following a proposal by the Holy See's Dicastery for Communication, carrying the words spoken by the Holy Father on 27 March 2020 to St. Peter's Square, empty due to the Covid-19 pandemic, into orbit.

In the **Technology** sector, the ASI Programmes Directorate oversaw a number of calls for proposals for technology R&D projects. During 2023, PNRR funding supported the stipulation of contracts for the start-up of a Space Factory distributed across Italy, open to all companies capable of building satellites of various types, with production lines dedicated to critical components and equipment.

ASI's **downstream** activities maintained their momentum in 2023, coordinated thanks to national investment initiatives and PNRR funding. These operations resulted in contracts and agreements with public authorities and the expansion and consolidation of the Matera base as a national and international space centre for integrated applications.

Earth Observation

This industry has shown itself to be of primary importance to the country. Scientific activities in support of Earth Observation missions were expanded with the launch of 10 new projects and the authorisation of a further 8 projects involving a large, interdisciplinary scientific community.
These include: national missions, ESA missions with a strong Italian participation, and programmes in cooperation with NASA. Work was also started on the development of two new-generation compact payloads: the Hyperspectral (HYP) instrument, a technological development of the first-generation PRISMA payload, which will be carried by a five-satellite constellation as part of the IRIDE programme, and the VHR compact sub-meter resolution optical instrument, which will be carried by a two-satellite constellation.
The latter provides Italy with new capability in innovative homeland, security and emergency services.

BILATERAL COOPERATION

Last year saw the launch of the Thermal Infrared Surface Biology and Geology (SBG TIR) mission in collaboration with NASA; the joint ASI/NASA study for the CALIGOLA Lidar mission for observation of the Earth's surface, atmosphere, oceans and their mutual interactions; and, as part of the LIMADOU agreement, qualification of both instruments planned for the CSES-02 mission, a collaborative effort between ASI and the Chinese Space Agency (CNSA), was successfully concluded: HEPD-02 (High Energy Particle Detector-02), an innovative particle detector made in Italy, and EFD-0, an instrument which represents the state of the art as regards the sensitivity of ionospheric measurements.

Robotic Exploration

The strategic issues here were the Moon, Mars and beyond Mars: the work done in 2023 surpassed expectations, marking a number of major milestones.

MARS

The International Mars Ice Mapper exploration mission, which entered its next phase last year, is making excellent progress. While the intention is to locate ice or water reserves in the first few metres below the Martian surface, the mission includes the development of a large deployable antenna that may mark a breakthrough in interplanetary communications, with important applications in the fields of Telecommunications and low-frequency Remote Sensing.

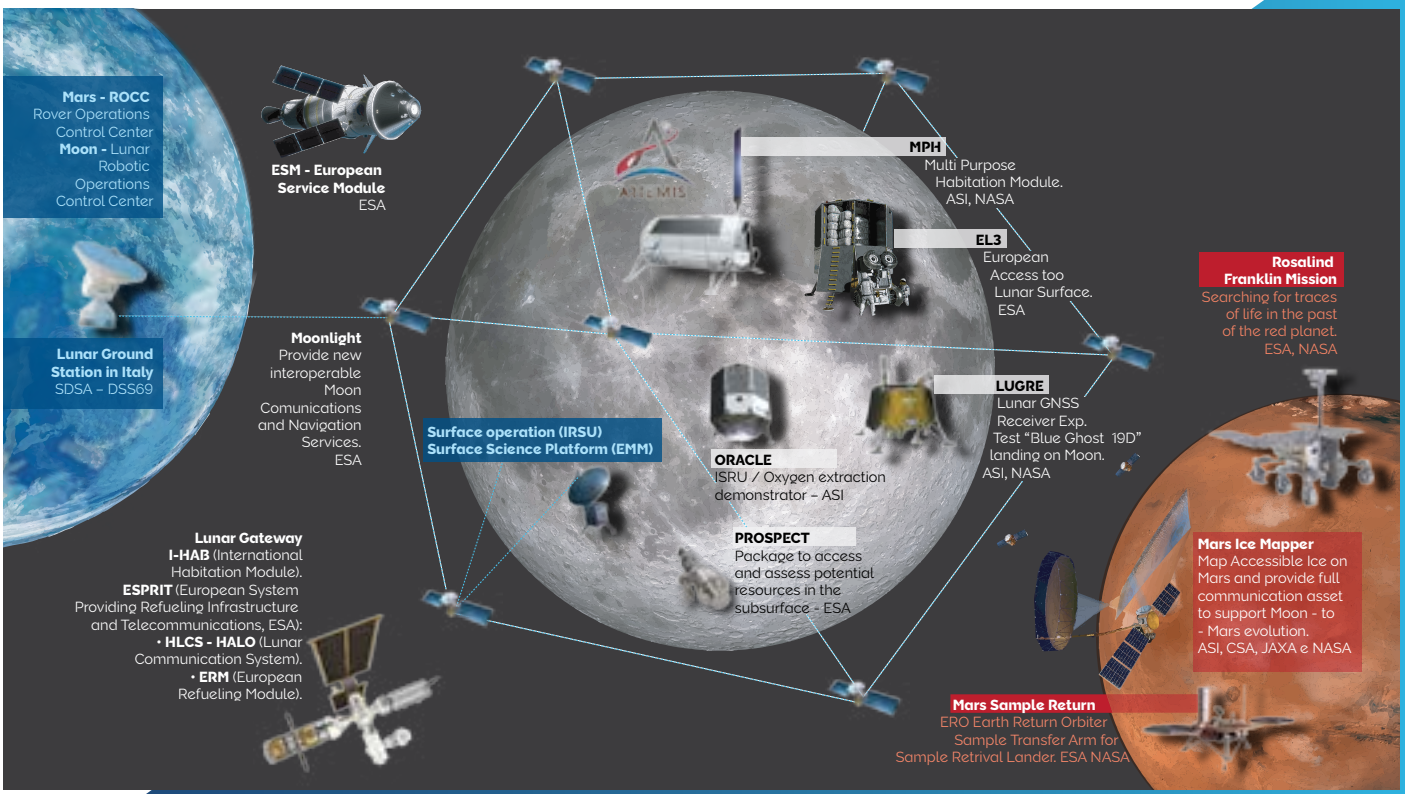
MOON

ASI initiated a number of projects relating to the Moon in 2023, including:

- a joint ASI-NASA study, in collaboration of Thales Alenia Space Italia, for the construction of the Multipurpose Habitation Module
- a phase A/B1 study, in collaboration with Politecnico University of Milan, of a lunar regolith oxygen extraction facility
- a call for two competitive feasibility studies for a robotic mission to the lunar surface
- construction of the lunar facility at ALTEC to simulate the morphology of the Moon's surface and the lighting conditions under which robotic systems and the infrastructure of the future will operate
- selection of companies to run two competitive feasibility studies regarding a robotic mission to minor bodies (NEA)

The year also saw the launch of the tender for the design and construction of a platform for low-cost access to deep-space destinations, a critical asset for Moon-To-Mars objectives. A study of new landing architectures for the Moon and Mars was also completed, with a view to increasing precision landing capabilities, which are crucial for future missions.

The Italian approach to the "NASA Moon to Mars strategy"



International Affairs Directorate

The space industry has become increasingly important not only as a tool for the scientific and technological advancement of Italy itself and the international community as a whole, but also as an opportunity for foreign policy and national diplomacy.
The International Affairs Directorate (DAI) is responsible for the management, relations and international cooperation of the Italian Space Agency: via studies, scenario analyses and regular consultations with the competent authorities, in particular with the Ministry of Foreign Affairs and International Cooperation (MAECI), it interacts with other national space agencies and represents Italy in institutional venues around the world, including ESA, the European Union and the United Nations, thus contributing to the Agency's mission in support of the national system.

International Relations and Space Diplomacy

As represented by DAI, ASI participates in meetings, forums and international events and coordinates initiatives intended to renew and stipulate bi- and multi-lateral agreements to guarantee Italy's participation in major space projects and missions, open up new markets and help consolidate the country's prestige in the space industry worldwide.
Major events in 2023 in which ASI played a leading role:

- **International Space Forum**, March, Panama City with the participation of eight countries from the Central American/Caribbean region and as many observer countries from South America. ASI organises the forum annually at the ministerial level, in collaboration with the **International Astronautical Federation** (IAF)

- **Space Symposium**, April, Colorado Springs (USA)

- A conference of **space agencies from IILA member** countries (2nd edition), May, São Paulo (Brazil) with a focus on strengthening the regional integration and sustainable development of space activities

- Sessions of the **United Nations Committee**, June, Vienna (Austria) on the Peaceful Uses of Outer Space (COPUOS)

- G20 **Space Economy Leaders Meeting**, July, Bangalore (India)

- **International Astronautical Congress** (IAC) 2023, October, Baku (Azerbaijan) the next edition of which will be held in Milan

- **Space Summit**, November, Seville (Spain) on a more sustainable future for European space transport

- **Space Leaders Summit**, December, Dubai (UAE) as a sidebar to the UN Climate Change Conference (COP 28)

BILATERAL RELATIONS AND NEW AGREEMENTS

Bilateral relations with European and non-European countries were also strengthened during the year, including with the United States (NASA), Japan (JAXA), India (ISRO), Canada (CSA), Argentina (CONAE), Israel (ISA), Kenya (KSA), Azerbaijan (Azercosmos), Egypt (EgSA), the United Arab Emirates (UAESA and MRSC), and Brazil (BSA).

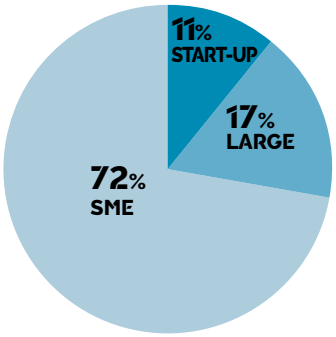
In addition, as represented by DAI, ASI finalised a number of new agreements with the United States, South Korea, Algeria, Japan, Latvia and Greece. In particular, five agreements with NASA were renewed (NuSTAR, SWIFT, MRO, GLAST and BepiColombo) and a new one was signed (COSI).

Relations with institutional and industrial stakeholders

In 2023, thanks to its collaboration with MAECI and National Industrial Associations (AIAD/AIPAS/ASAS), DAI promoted the internationalisation of the national space industry with numerous initiatives fostering concrete opportunities for partnership.
The agreement with the Agency for the foreign promotion and internationalisation of Italian companies (ICE) was renewed in December.

ENTERPRISES - DIMENSIONAL STRUCTURE

Composition by dimensional structure of the Italian industrial sector.
Source: *Italian Space Industry* online catalogue (209 companies)

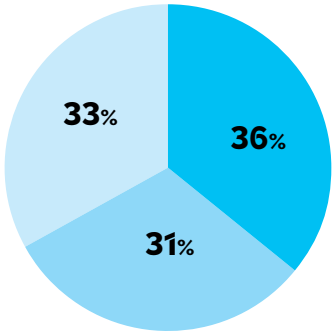


ITALIAN SPACE INDUSTRY

ASI continues to update its *Italian Space Industry* online catalogue, the leading census of the Italian industry. Registered companies, of which there were 209 in 2023, benefit from this international showcase of their products, services and technologies. The catalogue offers an overview of Italy's industrial capacity, and also monitors important indicators of value to the Agency's institutional responsibilities.

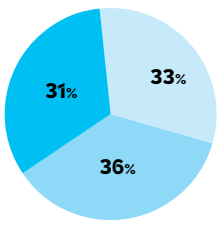
TOTAL ENTERPRISES

Type of activity in the value chain for all enterprises in the catalogue and for the three categories.
Source: *Italian Space Industry* online catalogue (209 companies)

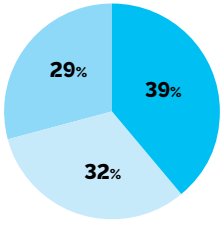


Upstream & Downstream
Downstream
Upstream

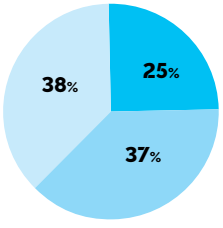
LARGE



SMALL AND MEDIUM

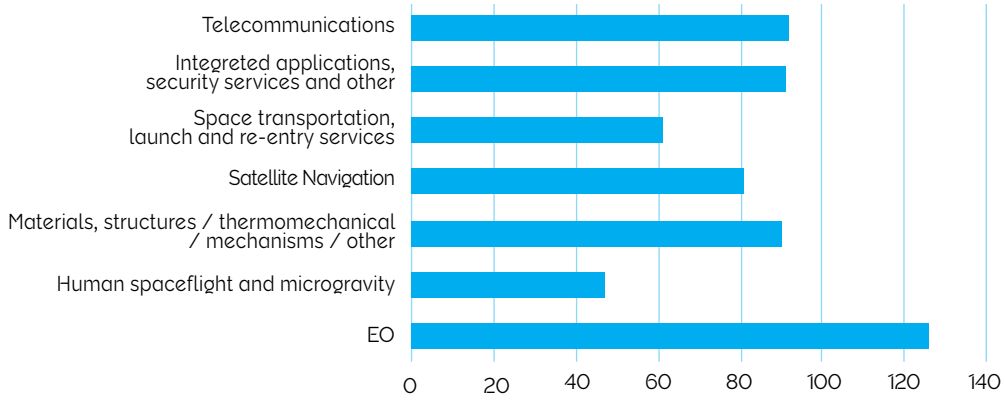


START-UP



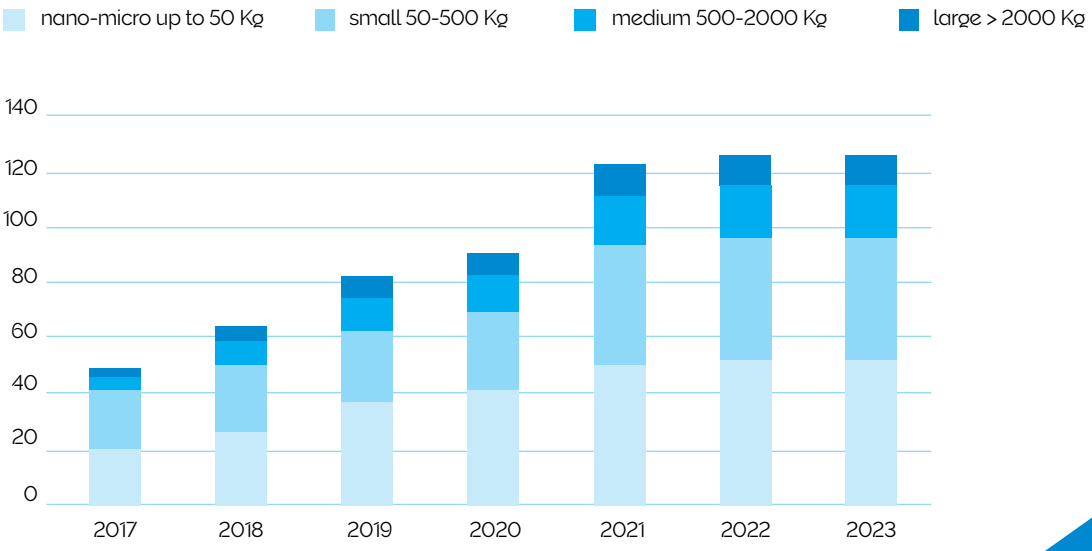
ENTERPRISES - AREAS OF OPERATION

Main operational areas of the companies reviewed in the *Italian Space Industry* online catalogue



ENTERPRISES - DIMENSIONAL CLASSES

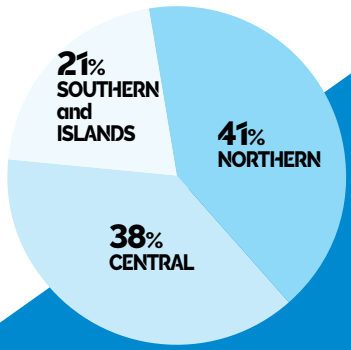
Number of active enterprises in the different size classes (mass) of satellites (2017-2023 evolution).
Source: *Italian Space Industry* online catalogue (209 companies)



ENTERPRISES - DISTRIBUTION BY REGION

Geographical distribution of national space industry plants, by region.
Source: *Italian Space Industry* online catalogue (209 companies)

ENTERPRISES - DISTRIBUTION BY GEOGRAPHICAL AREA



In 2023 a number of foreign industrial missions were conducted: in October ASI coordinated a delegation of 19 companies - large, medium, small and start-ups - to around 15 technical visits to US industrial players in the Houston, Los Angeles and San Francisco areas. Other initiatives and B2B meetings were held with the Algerian Space Agency, the Azerbaijani Space Agency, Slovakia, Slovenia, India and Japan.

Relations with ESA

As one of the founding countries of the European Space Agency (ESA), Italy as represented by ASI contributes to and actively participates in all ESA activities.

The International Affairs Directorate regularly monitors and coordinates Italian participation in ESA; it monitors the implementation of programmes signed by Italy at the ESA Ministerial Council Meetings (the most recently in Paris, 2022); it follows the economic and financial analysis of national investments in ESA and handles interactions with national economic operators awarded ESA projects (industry, universities and research centres) as well as relations between ASI and the ESA Centre at ESRIN, Frascati.

Italy is the leading contributor to the ESA Optional Programmes, thanks to an allocation of € 2.5 billion and its increased involvement in the fields of Exploration (Mars and Cislunar Orbit), Telecommunications (Moonlight, Secure Connectivity), Navigation (FutureNAV), Launchers (Vega, Space Rider), as well as Earth Observation and Space Safety, areas in which it plays a leading role.

Relations with the EU

At the European level, 2023 saw a major restructuring and strengthening of the Union's space programmes.

During the year, ASI supported the drafting of preliminary documentation for the meetings of the Space Advisory Group under the Swedish and Spanish Presidencies respectively. In particular, it provided input for the finalisation of the Conclusions Documents adopted by the Ministers at the Competitiveness Councils Research and Space (23 May and 8 December), and contributed to the drafting of the Italian position for the meetings of the Competitiveness Council and Space Council (joint ESA-EU Informal Council at the ministerial level) in Seville.

The Agency also collaborated in the organisation of meetings of the EU Space Programme Committee (EGNSS, Copernicus, SSA, GovSatCom, Security, Horizontal Group) and the EU research and development programme *Horizon Europe - Space*; as part of the EU-SST partnership, ASI promoted participation of the Italian space industry in tenders issued by the EU, and organised thematic meetings with representatives of EUSPA, the European Space Programme Agency.

Luigi Broglio Space Centre, Malindi

The Luigi Broglio Space Centre (BSC) in Malindi (Kenya) is a joint Italy/Kenya space cooperation programme, initially governed by a 1964 intergovernmental agreement for cooperation in space projects. The new Agreement came into force on 16 December 2020 and was subsequently expanded with five Implementing Agreements: Education and Training, Access to Earth Observation and Scientific Data, Establishment of the Regional Earth Observation Centre, Assistance in Establishing the Kenyan Space Agency and Telemedicine.

The Centre's core business is satellite data reception, telemetry and tracking of launchers and other space objects, which makes the Centre an important node in the network of cooperation with other countries and space agencies, as well as commercial operators such as SpaceX.

The BSC is also involved in research projects and training activities. In 2023, these included a course on the installation, testing and operation of an Earth observation antenna, the *Training the Trainer* course (part of the *Copernicus - Working Group for Africa* programme), and the international workshop on *Capacity Building on Space*, in cooperation with KSA, University of Pwani-Kenya, INGV, ICTP and UNOOSA.

ACTIVITIES

OPERATIONAL SUPPORT

- routine services for NASA's AGILE/ASI, SAOCOM/CONAE, Swift, NuStar, IXPE and COSI missions

- support for Space X and Ariane launches

SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES

RESEARCH ACTIVITIES

- as part of the EQUO (Equatorial Observatory) project

- testing and data acquisition as part of the CubeSat SIMBA - IKUNS 3 research project

The BSC in numbers

190 local workers

3 active contracts with space agencies

8 SpaceX launch support projects

2 ARIANE launch support projects

16 support for CONAE, SAOCOM 1A and 1B

9,156 procurement phases of the AGILE, NuSTAR, SWIFT and IXPE satellites

9 institutional and technical meetings between Italy and Kenya at the ministerial and agency levels

Institutional Communication Directorate: ASI image in Italy and around the world

Communication activities were expanded by Italian Space Agency in 2023. The increased focus on certain objectives (profile and visibility with respect to its reference targets, representation of ASI as the standard bearer for the Made in Italy brand in space) was accompanied by new projects and the revival, in revised form, of a number of initiatives that have proved particularly valuable in disseminating space-related topics.

In this, communication campaigns have progressively supported the development of the Agency's overall strategies unfolded over the past year.

The idea of circular communication, in a variety of languages, proved to be of value to the ultimate goal of maximizing the dissemination of information, and was therefore elevated to a guiding principle of ASI's communication activity, using a multiplicity of channels, tools and registers, all interconnected by a unified direction.

Within the framework of this multi-target and multi-channel strategy, priority was given to national and international events, to the opening to the public of the Rome and Matera offices with events and guided tours, to the strengthening of communication via new media, and to new policies for the dissemination of the Agency's published products.

The highlights of 2023 were the visit of Italian President Sergio Mattarella to the Broglio Space Centre in Malindi (Kenya) in March and the 3rd National Space Day in December, as well of course, as the launch of two international missions in which ASI and Italy played a leading role (JUICE in April and Euclid in July, respectively): all occasions on which ASI's Press Office ensured

effective coverage by the generalist and specialised, traditional and digital media.

On the internal front, the Agency has set up policy documents for the use of its facilities, both for third party events and for TV/film shoots.

We detail below ASI's Institutional Communication Directorate (DCI) activities, grouped by type.

Media Relations

These play a fundamental role in maintaining ASI's public image via the daily transmission of news about the Agency's activities and the coordination of information during its participation in exhibitions and congresses, raising awareness of the relevance of space in public opinion.

The resulting data highlights the work done by the Press Office in terms of coverage, also via the continuation of specific agreements and partnerships with major national and international players (ANSA, ilSole24h, Askanews and DIRE, to name a few). The efforts to publicise space-related topics, the results of the Agency's scientific programmes and its well-established collaborations, have yielded great results: more than 5,800 articles published in print and online, and around 890 reports on radio and TV.

PRESS RELEASES
92

PRESS CONFERENCES
12

RADIO AND TV REPORTS
889

NEWSPAPER ARTICLES, WEBSITES, NEW MEDIA
5,824

The web and social media

The web and social media have greatly broadened the Agency's audience. With its webTV programming, constant updateding of the institutional website, in-depth daily reports in the *Global Science* online newspaper (which registered 6 million more views in 2023 than in 2022) and the analyses published in the *Spazio 2050* quarterly, the Agency has systematically reached institutions, the world of industry, research and young people, and made the general public more aware of space issues.

ASI develops a variety of social content in-house (posts, videos, stories, reels, polls) dedicated to space missions, space economy outreach and education initiatives, and the number of the Agency's followers has grown steadily, reaching around 392,000 by the end of the year (+26,000 compared to 2022). The best results were recorded by the official ASI profiles on LinkedIn (+12,856 subscribers), the network for professionals and institutions, and Instagram (+11,194), which showcases the successes of the space industry with captivating visual content and actively engages a younger, generalist audience.

ASI FOLLOWERS

79,716

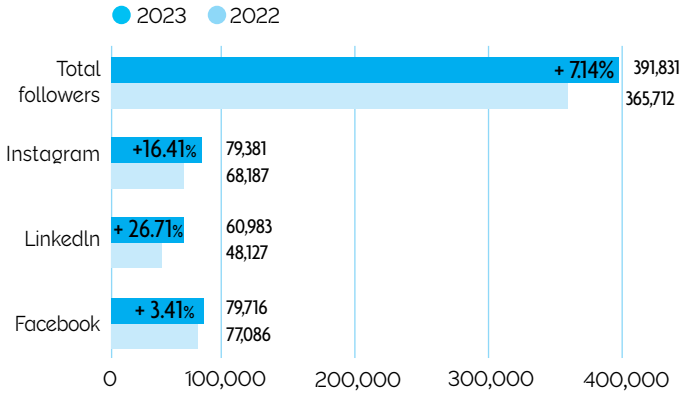
79,381

60,983

171,751

THE INCREASE IN 2023

SOCIAL NETWORKS



VIEWS ON ASITV:

PAGES VISITED
531,913

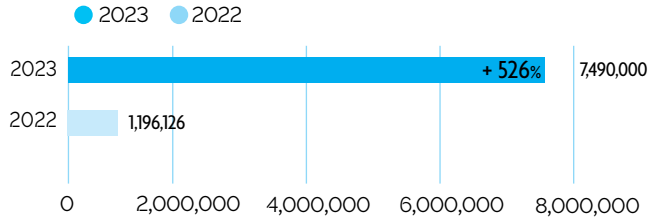
VIDEO VIEWS
103,219

LIVE VIEWER
83,235

VISITORS TO THE INSTITUTIONAL WEBSITE
1,567,715

GLOBAL SCIENCE VIEWS
7,490,000

GLOBAL SCIENCE



Events

The DCI employs a variety of tools to publicise ASI's image in Italy and around the world, with a particular focus on the need to meet new potential counterparts and stakeholders live. Of these, national and international events and exhibitions play a particularly important role.

Major world fairs on space issues such as ESA's *Space2Connect* conference, organised at ASI's Matera headquarters (7/9 June), the *54th Salon International de l'Aeronautique et de l'Espace* in Paris Le Bourget (19/25 June), and the 74th edition of the IAC (International Astronautical Congress) held in Baku, Azerbaijan from 2 to 6 October, provide a first-hand account of the country's excellence and the active synergies - catalysed by the Agency - between institutions, the scientific community and industry.

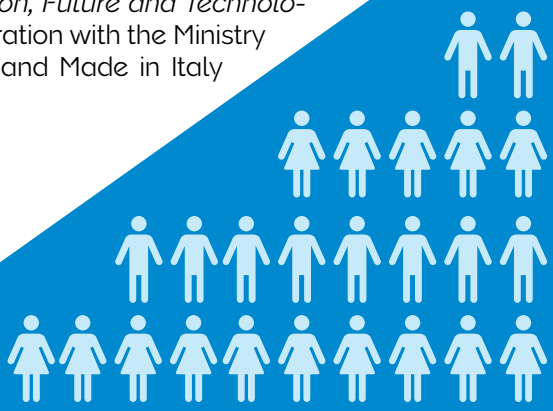
After a 3-year halt during the pandemic, ASI reopened the doors of its Rome headquarters to the general public in 2023 and, supported by the Public Relations Office, organised more than 40 visits from schools and private groups.

At the beginning of the year, the popular *Spazio Cinema* film festival, a series of in-house screenings of space-themed films that narrate scientific and technological developments from a captivating, non-academic perspective, also kicked off.

The National Space Day (15 December 2023 at ASI - Rome) was an important opportunity to share "Made in Italy success in space", as confirmed by the large turnout at the "In cinque minuti" talk.

National highlights in 2023 included the JUICE mission launch day on 13 April (ASI - Rome) and the Veneto Space Meetings in May.

Four exhibitions were curated by ASI or involved ASI's contribution, to great public acclaim: the exhibition *Space Made in Italy - Observation, Exploration, Future and Technology*, in collaboration with the Ministry of Enterprise and Made in Italy (MIMIT), which took its guests on a journey from the Earth to the cosmos, recounting once again the centrality of Italian industry to space, and *The Italian Spaceway,* organised by the Ministry of Foreign Affairs and International Cooperation (MAECI) in collaboration with ASI, AIDAA, Leonardo and TASI: an engaging interactive experience which stimulated reflection on the need to protect space and preserve its sustainability, held at dozens of diplomatic and consular locations.



THE NUMBERS

NATIONAL EVENTS: 9

INTERNATIONAL EVENTS: 9

EXHIBITIONS: 4

SPAZIO CINEMA
Screenings: 5
Total audience: 1,090

IN-HOUSE EVENTS OPEN TO THE PUBLIC: 2
European Researchers' Night: participants 1,300
Open House Rome: participants 500

STUDENTS: 2,800
Schools: 34

VISITORS: 1,000
Private groups: 11

Education

ASI runs educational projects and organises initiatives, meetings, workshops, competitions and outreach projects: in 2023 too it fulfilled its goal of inspiring new generations, bringing them closer to the study of STEM disciplines and promoting knowledge of space activities in schools. As part of these activities, ASI has developed numerous plans to promote the culture of science, also under the framework of Italian astronaut missions on the ISS: for example, at the end of the Minerva mission, ASI organised an event with Italian astronaut Samantha Cristoforetti, together with 40 schools from 14 regions of Italy and over 600 remotely connected and streaming users.

The ROSITA coding, artificial intelligence and robotics educational programme, a collaboration with Sapienza University of Rome, has promoted the development of new skills for space, including Pathways for Interdisciplinary Skills and Orientation as part of the *Lab2Go* project. *The Aerospace Job Talks* space career guidance programme, now in its second year, introduced high school students to the opportunities offered by the new space economy.

For the youngest children, ASI created the "Insieme si va più lontano" kit, distributed in over 1,000 primary school classes throughout Italy and, thanks to the *Uno Spazio di classe* project, students were able to meet and interact with ASI's experts at their schools.

Together with ESA, ASI co-manages the ESERO Italia programme for training teachers in space-related topics, the result of a specific Memorandum of Understanding stipulated in 2023.

INITIATIVES AT ASI HEADQUARTERS AND OTHER ITALIAN CITIES
10

STUDENTS
1,973

TEACHERS
470

"INSIEME SI VA PIÙ LONTANO" KITS
distributed to primary schools
1,000

STUDENTS REACHED
20,000

3D KIT MODELS OF THE COMO-SKYMED SATELLITE
produced and used in educational workshops on Earth Observation
2,000

Publishing projects

The year 2023 saw the launch of two new series of podcasts, a tool that has proved very effective in engaging the general public, and which has grown enormously over the past year, with a total of almost 6,000 downloads.

Comics continue to prove to be successful vehicles for dissemination among a wide public: ASI's collaboration with publishers Giunti and Bonelli, to whom the Agency provides scientific content, was reconfirmed in 2023, which guarantees a wide circulation outside the space industry itself.

PODCAST

3 SERIES

EPISODES
196

DOWNLOADS
5,962

PUZZLE MAGAZINE
SPACE KIDS - L'enigmistica

1

COPIES DISTRIBUTED
47,000

Spazio 2050
MAGAZINE

3 ISSUES

COPIES DISTRIBUTED
6,250

BOOK: *Generazione Spazio*
in cooperation with Giunti Editore

1

COPIES DISTRIBUTED
6,000

COMIC BOOK: *Martin Mystère - L'enigma del Satellite* in cooperation with Bonelli Editore

1

COPIES DISTRIBUTED
30,000

Human Resources Directorate

Human resources are undeniably ASI's core asset, and it invests in promoting their well-being, enthusiasm and engagement by sharing initiatives and information, and fostering autonomy, creativity and the exchange of knowledge.
The Human Resources Directorate (DRU) plays a decisive role in realising this objective. It constitutes a point of reference and liaison for every member of the Agency thanks to its dual role in HR administration and management on the one hand, and reporting to Directorate General on the other.

ASI's human resources are motivated and valorised by a merit-based system and incentives. Continuous training, listening to needs and the assignment of tasks and responsibilities offer challenging opportunities for professional fulfilment and career development.

The decision to put people at the centre of the organisation also responds to the need to meet the new challenges of governance under the PNRR, space economy and digital transformation, in which ASI's staff with outstanding know-how, play a key role.
In order to satisfy its growing number of activities and the consequent increase in tasks and responsibilities demanded by its institutional mandate, ASI has set itself the goal of expanding its staff to 600 by the end of 2026, as envisaged in the PTA.

From 277 staff in 2020, ASI still only had 287 staff by the end of 2021, which grew to 365 by the end of 2022.

An additional **68 new staff members** were recruited in **2023**, bringing the total number of tenured **employees** to **433**.

Human resources still represent only 5% of the Agency's overall budget.

WHAT THE DRU DOES: MANAGEMENT, VALORISATION, PROFESSIONALISATION

- It implements policies related to employees and persons treated as such, as well as the Agency's divisions, in consultation with its top management, in line with the organisation's vision, values and culture
- It maintains and organises the internal communication function
- It contributes to the construction of an adequate corporate welfare system
- It identifies and verifies staff retirement criteria, and prepares the associated pension files as well as preliminary investigations to ensure payment of end-of-service benefits (severance pay)
- It drafts labour relations procedures and documents
- It acts as the disciplinary body pursuant to the law and established contracts
- It supports the other Directorates and Units in evaluating individual performance as well as other organisational aspects relating to mission and service assignments
- It handles planning and recruitment and the development and growth of professional skills, including through appropriate training
- It ensures the administrative management of personnel and reports to Directorate General
- It handles relations with social security institutions, and supports employees in the processing of their insurance protocols

THE NUMBERS

PERMANENT STAFF
433

FIXED TERM STAFF
9

SECONDED STAFF
1

RESEARCH GRANTS
3

RESEARCH ASSIGNMENTS
2

Average age of staff (years)	**48.67**
Average age of managers (years)	**54.23**
Staff unit growth rate (difference by year)	**14.70%**
Overall staff turnover rate (incoming + outgoing/annual average staff)	**26.89%**
% staff with a university degree	**81.94%**
% of managers with a university degree	**100%**
Hours of training (average per staff member)	**16**
Cost of training (euro)	**208,896.63**

Absences	**4.52%**
Premature contract terminations	**0%**
Requests for transfer to another body	**0%**
Injuries	**0%**
Average staff salary (annual, euro)	**63,436.65**
% permanent staff	**97.74%**

% female staff	**48.8%**
% female managers (Directorate/ Organisational Unit/Office)	**44.87%**
Average female staff salary (annual, euro)	**60,695.74**
% permanent female staff (over total female staff)	**100%**
Average female staff age (years)	**49.12**
% female staff with a university degree (over total staff)	**84.04%**
Hours of training, female staff (average per individual)	**16**

Security Directorate

In recent years, the government's national security strategy for space has called for synergetic action between public bodies, industry, academia, research institutes and the private sector. Security, understood in its dual meaning, *of* space and *from* space, is therefore no longer a purely military and national concern, but rather a multi-sectoral issue, to be achieved at the global level.

The space industry involves an increasing number of players, both private investors and emerging countries. The resulting increase in competition requires greater attention to the issue of sustainability, and demands international standards to establish principles and procedures to prevent irresponsible actions and serious damage to the space environment.

Cyber threats are a key concern in terms of prevention and protection. Among the Directorate's many activities during 2023, cybersecurity operations were therefore particularly significant.

Cybersecurity

Space and cyberspace are two distinct but inevitably interconnected operational domains.

The former includes any element that contributes to the operation of space systems and the provision of related services: the outer space environment, orbits, spacecraft, ground and launch infrastructure, radio frequency links and user terminals. The second is the immaterial dimension that hosts everything (and everyone) on the internet: while on the one hand this has resulted in a vast number of previously unimaginable applications, including the exchange, storage and processing of information, on the other it makes it increasingly necessary to protect space assets and their individual components through all stages from design to operation.

ASI's Security Directorate has developed and implemented robust cyber security measures to safeguard satellites, communications networks and ground control centres, investing in the secure design of satellites, encryption techniques and secure data transmission protocols to mitigate the risks posed by cyber threats.
In addition, the process of commissioning the design and implementation of the Cyber Security Operation Centre (C-SOC) was launched, in order to prevent, counter and respond to cyber threats to the Agency's space technology infrastructure, both in Italy (Rome, Matera and Cagliari) and abroad (BSC, Kenya).

OBJECTIVES OF THE C-SOC

To provide constant monitoring of networks and systems with a view to the early detection of suspect activities, risk identification and the management of space system vulnerabilities.

To respond promptly to attacks, manage incidents and minimise any resulting damage by ensuring operational continuity.

To analyse identified criticalities in order to prevent potential future threats.

To ensure compliance with cybersecurity regulations, also as applicable to the protection of data and space infrastructure.

To provide the threat intelligence capability required for the comprehensive protection of the Agency's technological assets.

IT, Logistics and Digital Transition Directorate

Under the terms of AGID's Three-Year Plan for Information Technology in Public Authorities (PTI), and in order to guarantee the accessibility and maximum interoperability required by the Digital Administration Code, the IT, Logistics and Digital Transition Directorate (DIT) has opted for an approach that considers public data to be a common good (open data by design and by default), to be protected already in the design of the infrastructure that will host it (data protection by design and by default).

To this end, the Agency has signed Consip Framework Agreements with the aim of implementing regulatory directives (Cloud-based Application Services, PMO and System Management).

Principles of action

ASI's IT system architecture is based on open, standardised protocols, also to prevent the risk of lock-in.

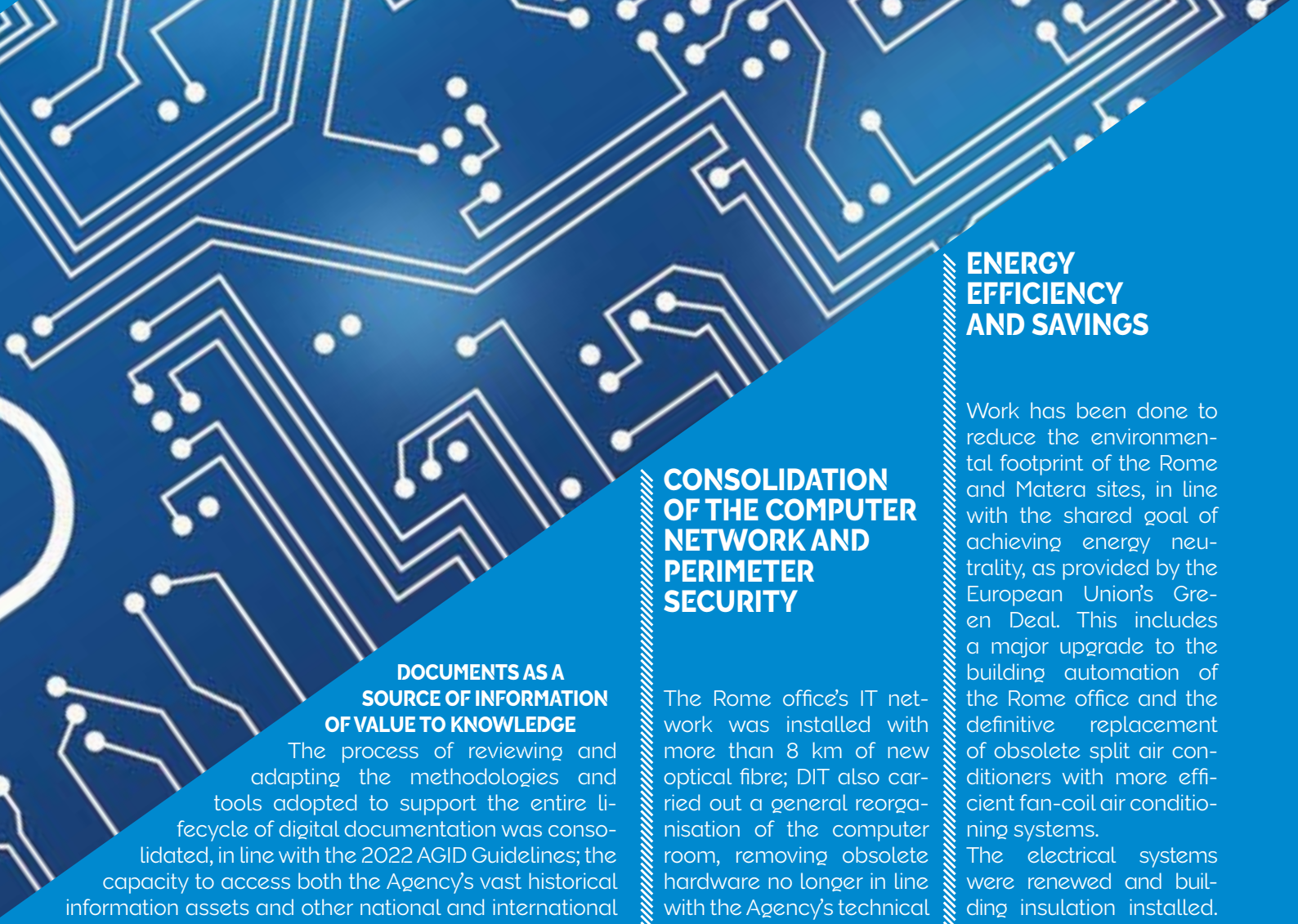
THE CLOUD AS THE FIRST OPTION

Adopted in 100% of new projects and new service development requirements, this favours existing "software as a service" solutions in the Cloud Marketplace, the platform which sets out ACN-qualified services and infrastructure.

INTEROPERABILITY BY DESIGN AND BY DEFAULT (API-FIRST)

To foster data integration and improve access to connected digital services in order to maximise interoperability between the Agency's legacy systems and digital services.

The next step will be to adopt the API-first paradigm to achieve applications which are interoperable by design and by default, thereby minimising the hidden costs of application development and integration.



DOCUMENTS AS A SOURCE OF INFORMATION OF VALUE TO KNOWLEDGE

The process of reviewing and adapting the methodologies and tools adopted to support the entire lifecycle of digital documentation was consolidated, in line with the 2022 AGID Guidelines; the capacity to access both the Agency's vast historical information assets and other national and international information sources was also expanded.

The ultimate goal is to create a learning organisation with systems and processes for managing, storing and evaluating information and key knowledge (explicit and implicit), to safeguard the resilience and flexibility of the organisation itself, as well as to ensure access to and exchange of information and open data with all stakeholders.

CONSOLIDATION OF THE COMPUTER NETWORK AND PERIMETER SECURITY

The Rome office's IT network was installed with more than 8 km of new optical fibre; DIT also carried out a general reorganisation of the computer room, removing obsolete hardware no longer in line with the Agency's technical expectations.
Significant work was done on the perimeter security equipment at the Rome and Matera sites, with a view to reinforcing current user authentication systems.

ENERGY EFFICIENCY AND SAVINGS

Work has been done to reduce the environmental footprint of the Rome and Matera sites, in line with the shared goal of achieving energy neutrality, as provided by the European Union's Green Deal. This includes a major upgrade to the building automation of the Rome office and the definitive replacement of obsolete split air conditioners with more efficient fan-coil air conditioning systems.
The electrical systems were renewed and building insulation installed. In addition to routine maintenance operations, DIT carried out a structural modernisation with extremely positive consequences in terms of the building's environmental impact.

Action plan

DIT's work during 2023 enabled the Agency to:

- re-engineer strategic digital services in operation, in line with the guiding principles of the PTI
- initiate digital transformation efforts aimed at centralising IT planning and spending
- introduce the 'digital first' principle by shutting down existing applications and enabling qualified services (ACN Cloud Marketplace)
- ensure the operational continuity of hardware/software infrastructure and their on-site maintenance and logistics services

HOW MUCH WAS SAVED

- **CO_2 250 t**
- Acid rain **SOx 185 Kg, NOx 250 Kg**
- No paper supplies were purchased

Agenzia Spaziale Italiana

Agenzia Spaziale Italiana

HEADQUARTERS

Via del Politecnico snc,
00133 Rome, Italy
Tel: +39 06 8567.1
urp@asi.it
asi@postacert.it

OPERATIONAL SITES

ASI Matera Space Centre

Località Terlecchia
75100 Matera (MT), Italy
Tel: +39 0835 377511

Luigi Broglio Space Centre (BSC)

P.O. Box 450 80200 Malindi, Kenya
Tel: +254 42 20999

Sardinia Deep Space Antenna

Casa Cantoniera di Pranu Sanguni
09040 San Basilio (CA), Italy
Tel: + 39 06 8567988

www.asi.it

Photo credits:
ASI/ESA/NASA