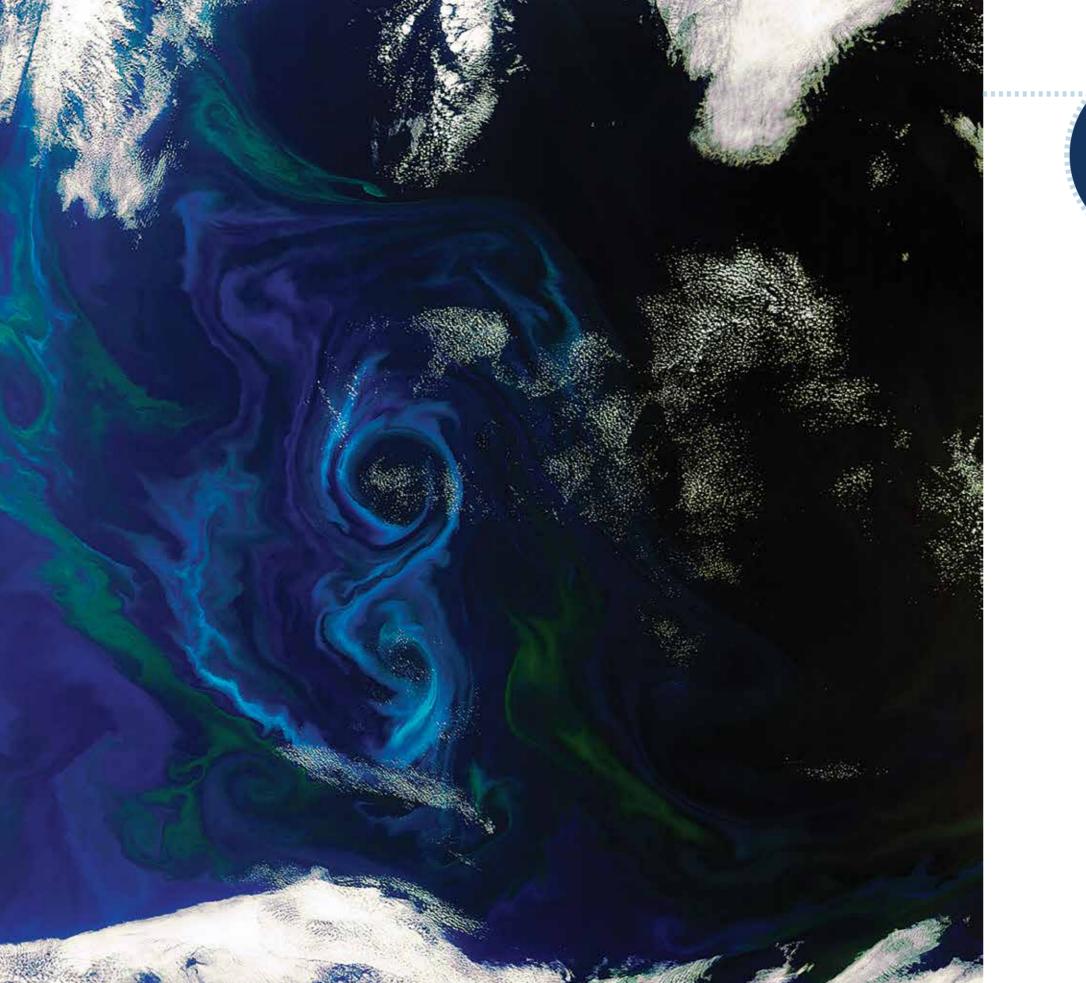


## PORTUGAL SPACE 2030

### A RESEARCH, INNOVATION AND GROWTH STRATEGY FOR PORTUGAL

APPROVED BY THE GOVERNMENT, 15 FEBRUARY, 2018 (RESOLUTION N.º 30/2018).

PUBLISHED IN "DIÁRIO DA REPÚBLICA" (1.ª SÉRIE, N.º 50), 12 MARCH, 2018.



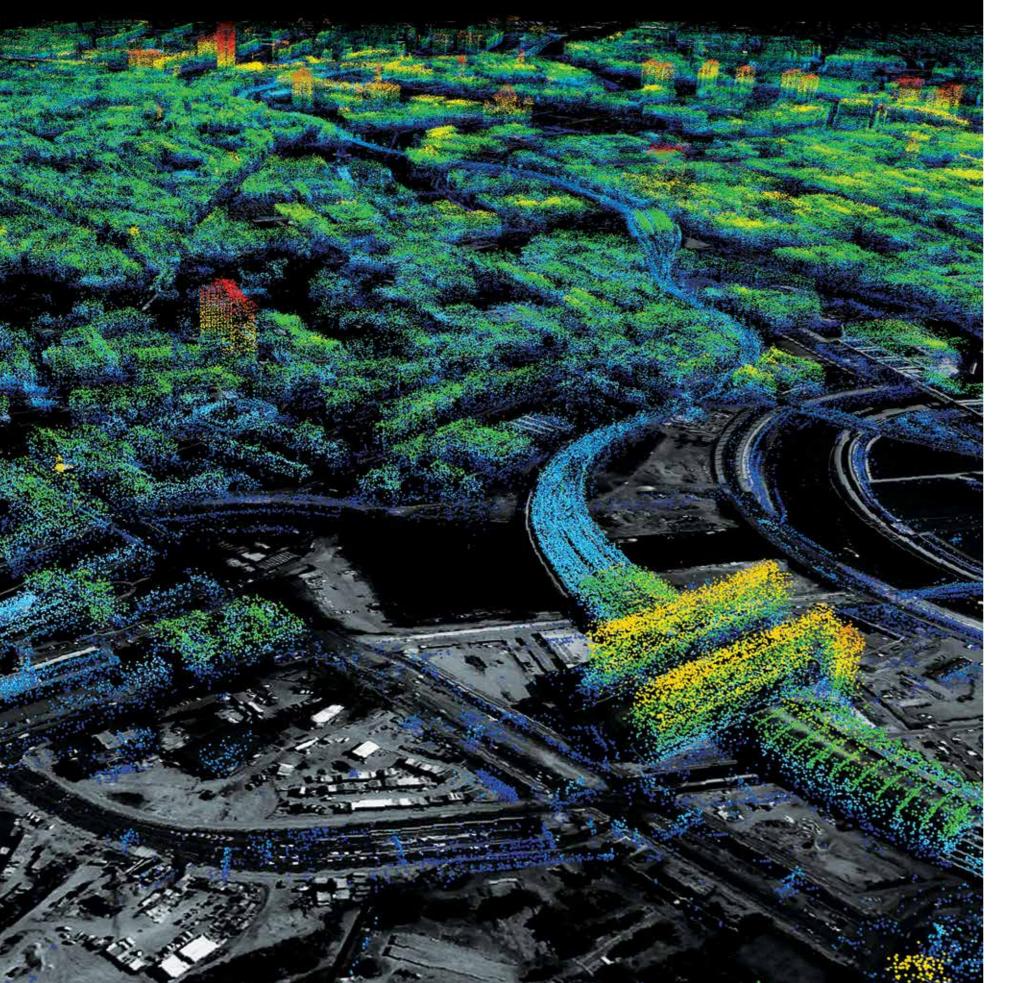


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#### INTRODUCTORY NOTE

Manuel Heitor

MINISTER FOR SCIENCE, TECHNOLOGY AND HIGHER EDUCATION

Space and the development of the technologies associated with or derived from it are today recognized as a national drive by several nations, representing an imperative for the promotion of social and economic progress of a country and for international security. Indeed, the safety and well-being of society are increasingly dependent on information and services provided from space, and it is important to point out the transfer of skills acquired between this sector and others such as agriculture, fisheries, infrastructure monitoring, urban development, defense and security, and even the public health sector and epidemics monitoring, among others.

The importance of space and space-based services for European society is expected to continue to increase as we approach an increasingly interconnected society and an increasingly digital economy, as recently recognized by the European Union Council conclusions "The Space Strategy for Europe" of 30 May.

It should also be clear that Space must be seen as a *public good*, to be associated with our institutions and collective ambitions, and it is critical to continue to democratize access to Space. It is in this context that space technologies are unavoidable for the future of Humanity, requiring continued investment in education and culture for space, increasingly attracting future generations of scientists, engineers and entrepreneurs and leading the general population to become interested by disciplines in the areas of science, technology, engineering and mathematics, as well as promoting space for education and culture, promoting the dissemination of educational, scientific and cultural contents to populations in remote

areas with difficult forms of interconnection. Space technologies can thus be an instrument through which, desirably, it is possible to enable the World for Peace.

In Portugal, in the continent as well as in the archipelagos of the Azores and Madeira, it is essential to continue to support the growth of the space sector. More than 15 years after joining the European Space Agency (ESA), Portugal is now considered a success by the rapid adaptation and integration in space programmes. As a result of this investment, the Portuguese space industry ecosystem has an economic return of more than 120% in the last decade, involving a total workforce of over 1400 people, including 300 highly qualified engineers, and generating a turnover directly related to technologies Space of about € 890 million between 2006 and 2015. This evolution is also the result of the efforts of scientific institutions and companies in the development of skills and competences in various areas, including telecommunications, cyber systems, augmented reality, Earth observation, navigation systems, space exploration and launcher technology, among many other subdomains.

The OECD analysis of Portugal's return on investment in ESA points to a multiplier effect between 4 and 5 of the public funding of R&D activities. An FCT economic impact study showed that as early as 2010, for each euro invested in ESA space programmes a return of more than two euros was generated for the national economy, mainly associated with skilled employment and exports in higher value-added sectors. In addition, Portugal and ESA have set up a joint incubation programme for companies

whose estimated results point to the creation of 30 companies and 240 highly qualified jobs in the last two years. Under the European Union's Horizon 2020 programme, more than half of the investment in space technologies has been captured directly by the business community.

This process of capacity building and recognition of the emerging space sector in Portugal has been the target of the recent strategy of strengthening scientific diplomacy and international scientific and technological cooperation, in particular by strengthening cooperation with Luxembourg, Spain and India, as well as with processes in progress with France, Germany, the United Kingdom, the United States, Brazil, and also Nigeria and southern Africa.

This strategy includes the need to stimulate new markets, public and private, in Portugal and in the international context, developing in Portugal pilot projects of international relevance and a demonstrative context in diversified sectors including agriculture, fisheries, monitoring of large infrastructures, urban development, defense and security.

In addition, the "New Space Industries" sector (i.e., "New Space Industries" or simply "New Space") considers a new wave of actors and business models in the international space sector characterised by the ability to attract private funding, in view of predominantly commercial markets and requiring communication and information systems based on mega-constellations of micro and nano-satellites. New Space opens up new opportunities for Portugal as well as other small and medium-sized countries, notably at the level of production and use of data, based on specific technology platforms dedicated to Earth observation for

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social and economic activities, and at the level of data generation and infrastructures. It includes the necessity and the challenge of developing and building satellites, mainly micro and nano-satellites, and the development of mega-constellations, with developments expected to democratise access to low-altitude orbits (LEO) and sun-synchronous orbits (SSO).

This new space-based background wave, which has an immense societal impact, requires, however, that access to space is not only more economically accessible, but also more efficient in terms of timing, security and environmental preservation. For that it essential to deliver new launch systems, efficient and scalable new propulsion systems, ensuring environmentally sustainable and safe systems, meeting the United Nations Sustainable Development Goals for 2030, together with the safety of populations in the vicinity of launch areas. In the specific context of Europe, it is also necessary to meet the challenge of installing new satellite launch services in the European territory, stimulating the effective democratisation of access to space at internationally competitive prices. The growing competition at international level in this context has emerged rapidly, notably through the United Kingdom and the Nordic countries, requiring a new strategy in the process of enhancing the Atlantic positioning of Portugal and the real opportunities that the Azores offer in this regard.

The Atlantic location of Portugal is thus critical and opens new opportunities in the international context. It facilitates, in particular, the installation of observation and measurement infrastructures in a spectrum that is not reachable or replicable in any other country, which

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represents an effective comparative advantage. In this context, the development and promotion of the "Atlantic Interactions" agenda and the Atlantic International Research Centre (AIR Centre) aims to promote an international R&D cooperation programme to reinforce knowledge on space- Ocean-climate cooperation through North-South / South-North cooperation.

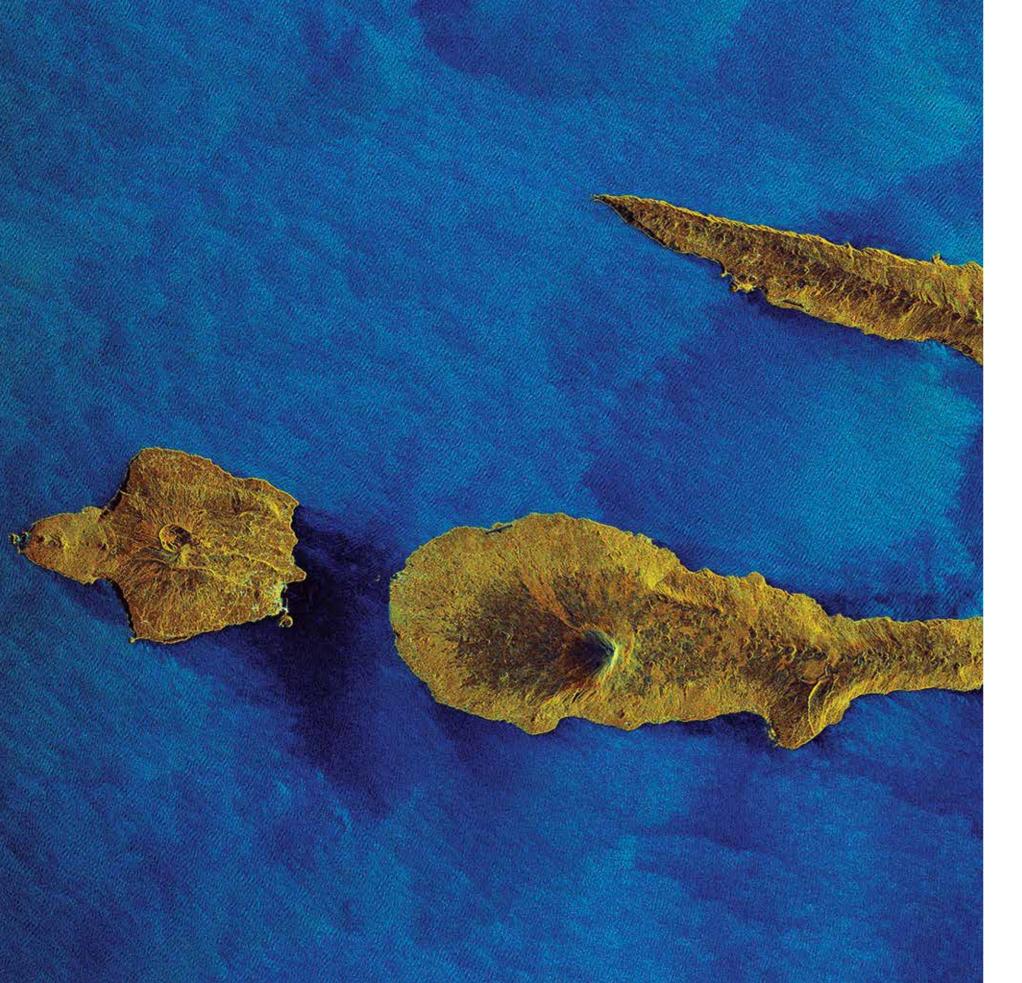
Also deriving from its unique location in the Atlantic, the Autonomous Region of the Azores has a particularly suitable geo-strategic position to consider the installation and operation of a space infrastructure for launching satellites. Its location on the territory of the European Union in the Schengen Area, as close to continental Europe as it is to the American continent and with a large oceanic coverage of more than 1500 km in any direction, offers absolutely unique advantages for the promotion and development of the "New Space", particularly through the ongoing reinforcement of satellite monitoring infrastructures (i.e. antennas) and, mainly, the installation of new satellite launch services, including the potential for the installation of a space port. The challenge necessarily involves considering and stimulating a new generation of launchers in terms of safety and environmental impact, as well as ensuring the unprecedented installation of a global space port open to all international actors and operators. In other words, the installation of a new generation of environmentally sustainable and safe satellite launch services, open to the world, can create a new positioning of Portugal in the world (i.e., "the new generation of environment-friendly, safe and open space port").

The national prestige already achieved requires that Portugal, in the near future, positions itself as a true space fairing nation, with capacity to take

on the new challenges of the sector. This is, moreover, an imperative for a country that seeks to stand out in the international scene in terms of science and innovation.

It is in this context that the national agenda "Portugal Space 2030", as approved by the Government, mobilises various sectors of society for Space, valued as a public good, fostering new opportunities for institutional, industrial and international cooperation and contributes to the development of innovative and competitive technologies in the international market.

Responding to these challenges requires stimulating new promotion activities at national and international levels, which should result from the gradual institutional transformation of the current Space Programme, within FCT, into a true space agency acting in close and effective cooperation between various sectors of the governance and public administration in collaboration with public and private users. The development of this agenda also requires also the establishment of a regulatory entity that registers, authorises / licenses and regulates space activities and space objects, and which must act as a single interlocutor between the space actor and public entities that, due to the matter at hand, must intervene in the procedure. These entities must be created and regulated through a legal framework of their own, which is competitive at international level.



#### INTRODUCTORY NOTE

Gui Menezes

#### REGIONAL SECRETARY FOR THE SEA, SCIENCE AND TECHNOLOGY, AZORES REGIONAL GOVERNMENT

The dimension that the Autonomous Region of Azores confers to Portugal via its location in the centre of the North Atlantic is undeniable. To this essentially maritime dimension, there is a spatial dimension which is becoming decreasingly an exclusive object of analysis and exploitation of the major powers. Today we can say that the Azores are not only sea, they are also Space.

The Azores already play an important role in the international space scene, as a result of investments that have been visionarily made in infrastructures, networks and projects related to this theme. Integrating NEREUS (Network of Regions Using Space Technologies) since its foundation, which allowed for the accompanyment and contribution to the definition of the European Space Strategy, about a decade ago the Azores placed a successful bet on space technologies.

In fact, the Azores host the first station of the European Space Agency in Portugal and one of the first stations of the ESTRACK network, capable of tracking satellite launchers, to which was added a Galileo Sensor Station, an elements of the European terrestrial segment of the global navigation satellite system. Also in this context, it should be noted the significant investment made by the Azores in two radio astronomy stations integrated in the Atlantic Network of Geodynamic and Spatial Stations (RAEGE), which constitute the most appropriate infrastructure for the observation of the deep space and the sources generating the electromagnetic signal that constitute it.

Due to the opportunities that Space offers in the Azores, as a result of the privileged location, other projects may be a reality

soon, with perspectives of economic and social development of a considerable size.

It is, therefore, in the interest of this Region to continue its focus on space technologies, related infrastructures, and also on earth observation data storage, processing and services provision infrastructures.

By benefiting from its proximity to Sentinel data reception infrastructures, the Azores could offer a platform to support the Copernicus and Galileo programmes, ensuring that they are available to the world through powerful and reliable communication infrastructures. It is also in the interest of the Region to focus on scientific development, not only in highend areas, arising from the use of space infrastructures in some of the archipelago's islands, but also in areas such as the Ocean, Atmosphere and Climate, thus providing continuity to the work of regional teams over the last three decades and ensuring a sound basis for the study of climate change and the sustainable use of Atlantic resources. It should also be noted that these areas of research may benefit from the applicability of Earth and Space observation data and the involvement of the Region in the creation of the Atlantic International Research Centre (AIR Centre), whose headquarters are expected to be installed in the Azores.

Space activity represents an important milestone in innovation and service delivery to the public. However, the number of countries with own utonomous competences in this area is reduced in comparison to the number of countries benefiting from the services provided by space and space technologies, which obviously include geo-referencing, earth observation and telecommunications services. There is therefore a clear

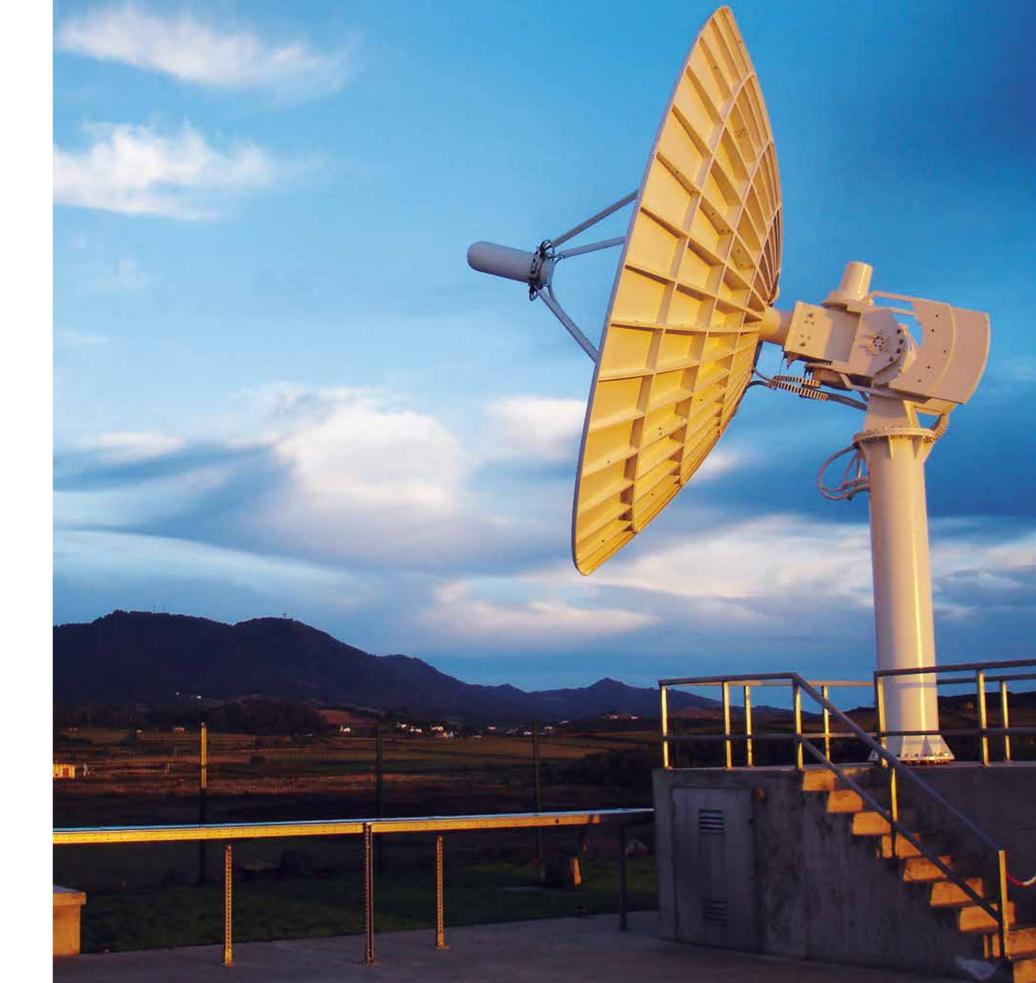
and consistent commitment to this sector which may in the future, on the one hand, benefit developed economies and, on the other hand, boost emerging economies.

The Azores can make a significant contribution to the relevance of Portugal in a field that is no longer novel, since it has been an integral part of the European space development scenario through its participation in the European Space Agency for 15 years.

Due to our unique geo-strategic position between Europe and America, the Azores have an Exclusive Economic Zone with an area of approximately 1,000,000 square kilometers, therefore presenting a strong potential to guarantee a structural change of the Azorean and Portuguese societies. The Azores gather the basic premises to ensure development resulting from such change and look forward to exploring the conditions that will guarantee a participation in the strategy that is being designed and that will have a very positive impact on the life of its inhabitants.

In addition to the abundance of water and marine resources and the competitive advantages associated with various economic activities, the Azores are characterized by young and qualified human resources, excellent tax benefits and an unparalleled private investment incentive system. All islands have a set of facilities, equipments and services to support business activity, such as ports, airports, highways and also technological and industrial parks, with excellent infrastructure, and a high-speed transmission communications linking the Azores to the World.

The Azoreans intend to live up to the challenges that lie ahead and be an integral part of the projects that the Region can leverage in the space area. We believe that the future of our Region is also in Space.





#### INTRODUCTORY NOTE

Paulo Ferrão
PRESIDENT, FUNDAÇÃO PARA A CIÊNCIA E A TECNOLOGIA

Space represents a dimension of our lives that has been occupied by ambition, dreams and knowledge.

The ambition to explore new frontiers, to promote better knowledge of the Earth and to provide global communication systems, the dream to carry out the space adventure and the scientifically based knowledge that is undoubtedly associated with the launching of space vehicles, the operation of satellites or the Space exploration.

Portugal, a member of the European Space Agency (ESA) for 15 years, represented by the Fundação para a Ciência e a Tecnologia (FCT), has developed a scientific and business community which now enables the proposal of a strategy for space, as a promoter of research, innovation and growth.

In this context, the scientific and business community is strongly multidisciplinary, involving areas such as astronomy, computing and cyber-physical systems, Earth observation, navigation systems, telecommunications, launchers technology, among many other subdomains.

Portugal intends to reinforce its contribution in a European context which, for example, has a satellite production industry that accounts for around 33% of the world market, and which has a large number of SMEs committed to the development of diversified end-user services, thus establishing a link between the space sector, with a large number of players, and other sectors, in a movement called "New Space".

Portugal thus presents a strategy which creates the conditions to attract more science based investment, from the area of space ports to space enabled services, including the provision of components and services for launchers and satellites.

This strategy is consolidated by a research agenda promoted by FCT, which targets most segments of the industrial value chain and encourages collaboration between companies, research centres and universities, promoting technology transfer and product and service innovation.

With this strategy, Portugal declares its intention to affirm itself as a space nation, supporting Europe in its ambition to guarantee, in its territory, competitive access to space as well as the provision of services in orbit.

In taking up this challenge, Portugal further consolidates its ambition to promote an Atlantic leadership, particularly within the scope of the research agenda that leads in an international context: "Atlantic Interactions", which focuses on the use of space in promoting integrated research in oceans, climate, energy and atmosphere.

This strategy constitutes an important step in organizing the necessary instruments so that science and knowledge contribute decisively to promoting socio-economic development in Portugal.

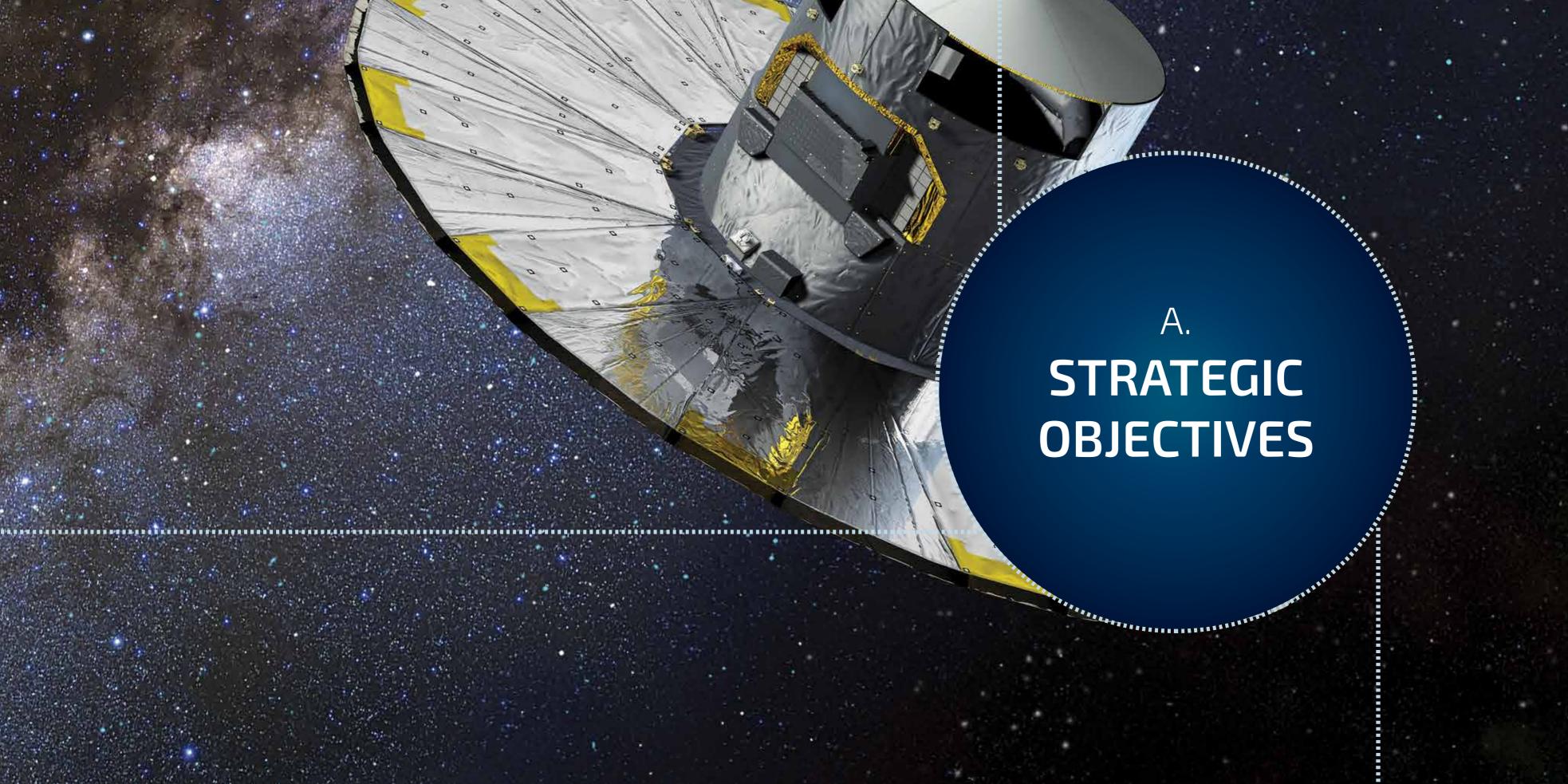


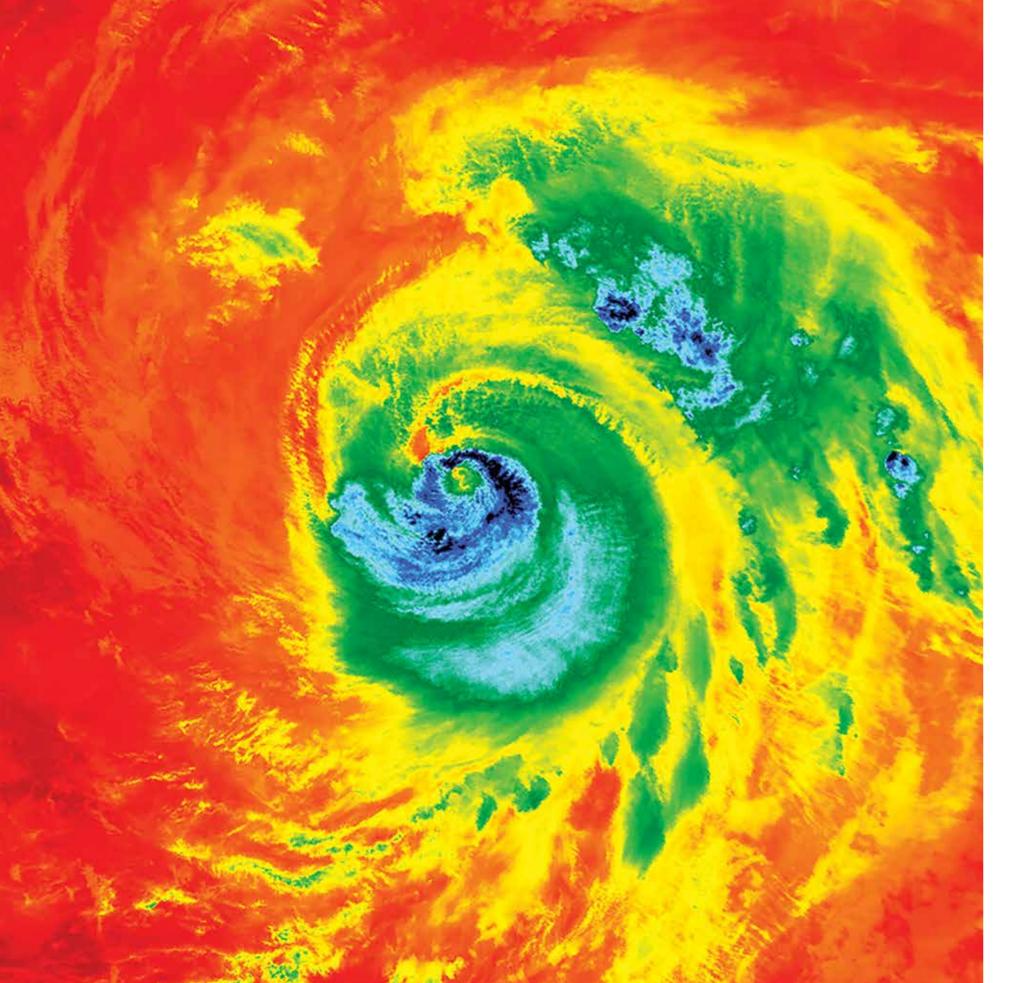
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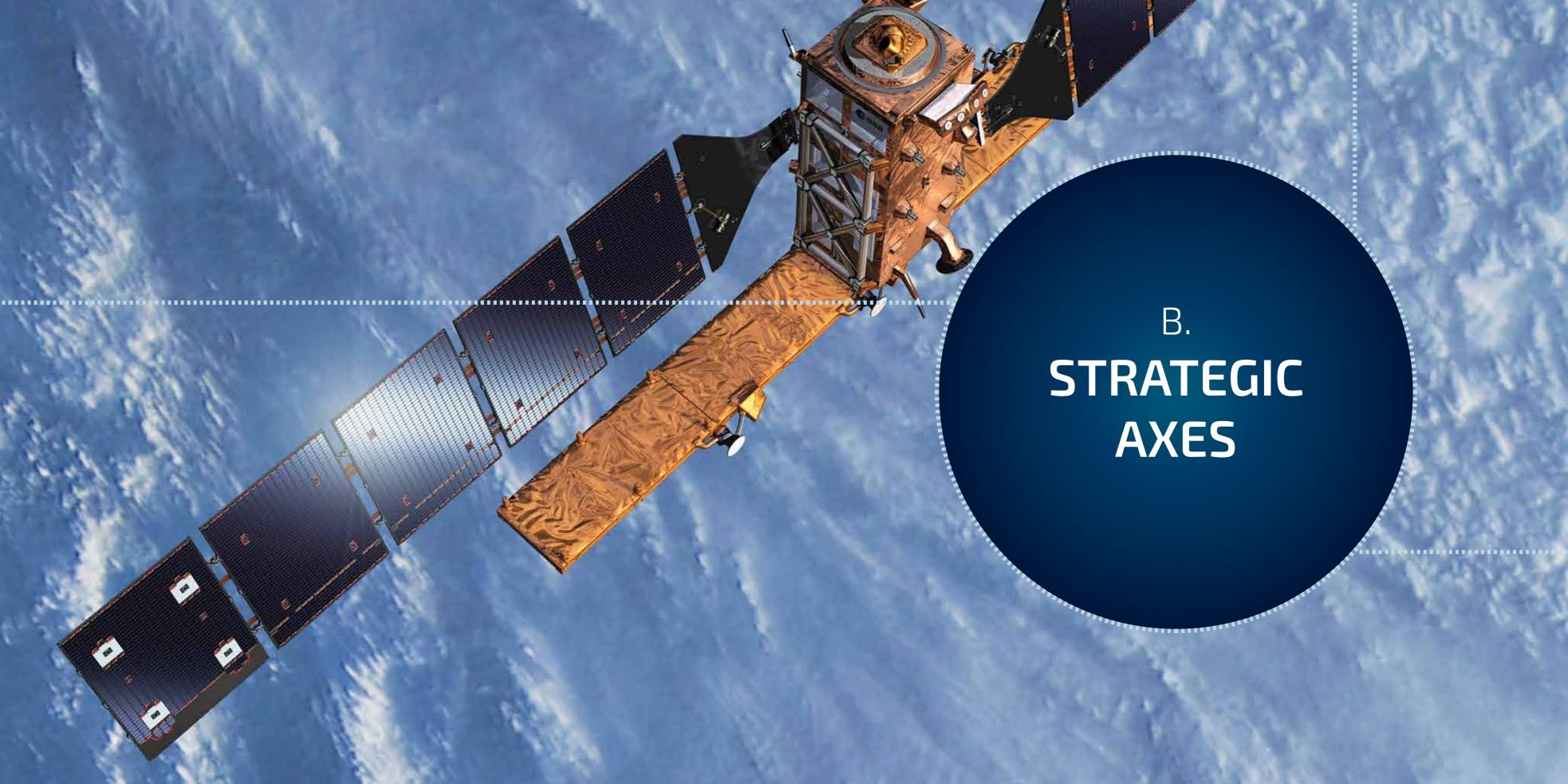
APPROVED BY THE GOVERNMENT, 15 FEBRUARY, 2018 (RESOLUTION N.º 30/2018).

PUBLISHED IN "DIÁRIO DA REPÚBLICA" (1.ª SÉRIE, N.º 50), 12 MARCH, 2018.





- Promote economic growth and the creation of skilled jobs in Portugal by promoting space-related markets, namely through market uptake and exploitation of satellite data and signals cutting across multiple activity sectors and addressing societal challenges, including in agriculture, fisheries; in monitoring infrastructures, in urban development, in defence and home security, and in the public health sector;
- Foster the generation of satellite data through new space technologies and space-related infrastructures in Portugal, leveraging international scientific and technological cooperation and turning Portugal into a stronger player in the space sector, with emphasis on new space industries (i.e., "New Space");
- Contribute to the development of the country and to the strengthening of diplomatic relations and international scientific cooperation, taking into account the advantages of Portugal's geostrategic position for the Space sector, and also with a view to sharing the return of space activities with countries and not yet developed capacities in the space domain, with emphasis on Portuguesespeaking countries;
- Ensure the development and evolution of the legal, financial, institutional, cultural/educational internationalisation frameworks capable of boosting the development of the Space sector in Portugal through national initiatives and international cooperation for the next decade.



Three main strategic axes are proposed to be implemented including in close cooperation with ESA, the European Commission and other relevant international partners



Boosting the exploitation of space data and signals through space-based services and applications, promoting new markets and highly-skilled jobs in a diversity of areas;



Fostering the development, construction and operation of space equipment, systems, infrastructure and space data generation services, with an emphasis on mini, micro and nano satellites but also opening up new areas of intervention in Portugal for launchers services, including and extending existing satellite monitoring and tracking and Earth observation activities;



Continuing to build national capacity and skills, through scientific research, innovation and education and scientific culture, allowing the long-term sustainability of infrastructures, services and space applications.



Economic growth and the creation of skilled jobs can be achieved by stimulating the market uptake of space-based and space-enabled services that deliver a wealthy amount of space data and signals. For that to happen it is key to break the boundaries between space and other sectors and to find ways to exploit multiple sources of data and massive data systems (i.e., "big-data"). The integration with communication networks (including 5G technologies), information networks (internet and scientific networks), energy and mobility infrastructure networks, among others, is essential to achieve an impact beyond the limited scope of institutional markets. Global internet coverage, smart agriculture, autonomous vehicles, remotely operated vehicles (known as drones) and the "internet of things" (IoT) are some of the technological trends that will inevitably push for the development of a new generation of space-based services that reach far beyond the traditional use of satellite navigation and Earth observation systems, and open the way to limitless business opportunities.

New space-based services have the intrinsic potential of scaling-up to global markets – a notion that is important to highlight given the limitations of the markets at domestic and even at European levels. Thus, it is strategically interesting to exploit the natural alliances with Portuguese-speaking communities all over the world, as well as to develop new strategic alliances and international partnerships and to tap into the growth potential of Asian markets that are quickly expanding.

The engagement of end-users and clients is critical to boost the use of space data and ultimately to fuel the growth of "downstream" public and private markets in all areas of activity. It includes areas such as maritime monitoring and surveillance; agriculture, fisheries, natural resources monitoring, desertification and wildfire protection; reduction of the digital divide; climate change monitoring and meteorological services; improvement and deployment of communication, energy and mobility networks; health assistance; monitoring of migratory flows.



Portugal already hosts important space infrastructures with which it contributes to ESA and European Union space programmes and initiatives. A notorious example is the ground-based infrastructure located in the Azores. On top of that, Portuguese companies and research organisations take part on important innovation and technology development projects also in the frameworks of ESA and European Union space programmes, demonstrating that national players hold competitive and reliable skills. It is now time to step-up the efforts and raise the ambition of developing and promoting the space infrastructures of the future, to address the challenges and opportunities of the space sector at global level.

It is, thus, essential to adopt a differentiation strategy, taking advantage of Portugal's geographical and Atlantic positioning, capitalising on the country's scientific and technological base and its national entrepreneurial capabilities. This strategy must take into consideration the rapid rate of technological evolution, the growth prospects of the space sector and the barriers that still holds it down, requiring a careful consideration of the following issues:

- Reduction of the cost of access to space, resorting to innovative, environmentally responsible and safe launching technologies, enabling the growth of the nano, micro and mini-satellite markets and envisaging disruptive operational approaches and the installation of new launch services for small satellites, open to international cooperation with a wide range of operators, including an open spaceport;
- Development and construction of the next generation of satellites, following the trend of miniaturisation of satellite platforms, with an increasing use of COTS components, flexible multi-purpose sensors and energy, communications and orbit management technologies beyond the current state-of-the-art;

- Deployment of large inter-connected satellite constellations for multiple and integrated applications, in domains such as Earth observation, satellite navigation and satellite communications;
- Contributing to the European capacity to monitor space assets and space debris, going as far as enabling future "space traffic" management services;
- Hosting strategic ground-based infrastructures that enable the
  operation of current and future spacecrafts with a view of enabling
  security sensitive services, improving access to satellite data and
  signals, catering for the needs of data dissemination to end-users
  and clients, and also to the agents that deliver value-added services.

Since space technologies are evolving at such a fast pace with technological breakthroughs that are difficult to forecast, the uptake of public and private markets can only be achieved if a user-driven approach, addressing concrete socioeconomic challenges, is systematically encouraged, thus augmenting the impact of the investments in current and future space infrastructures.



Despite the progress made so far in the development of the national space sector, there are still major challenges to tackle and barriers to overcome in order to further increase its dimension, influence, the competitiveness of national actors and their capacity to further impact the economy and society. On one hand, it is important to strengthen and broaden the range of current public and private actors, on the other hand, it is still necessary to ensure the mobilisation of other sectors by strengthening the support for the development of new competences in Earth and Space sciences and in space technologies. The use of Space must also be pursued by companies and scientific and technological institutions, where the process of democratisation of access to Space that we have been witnessing is of great importance.

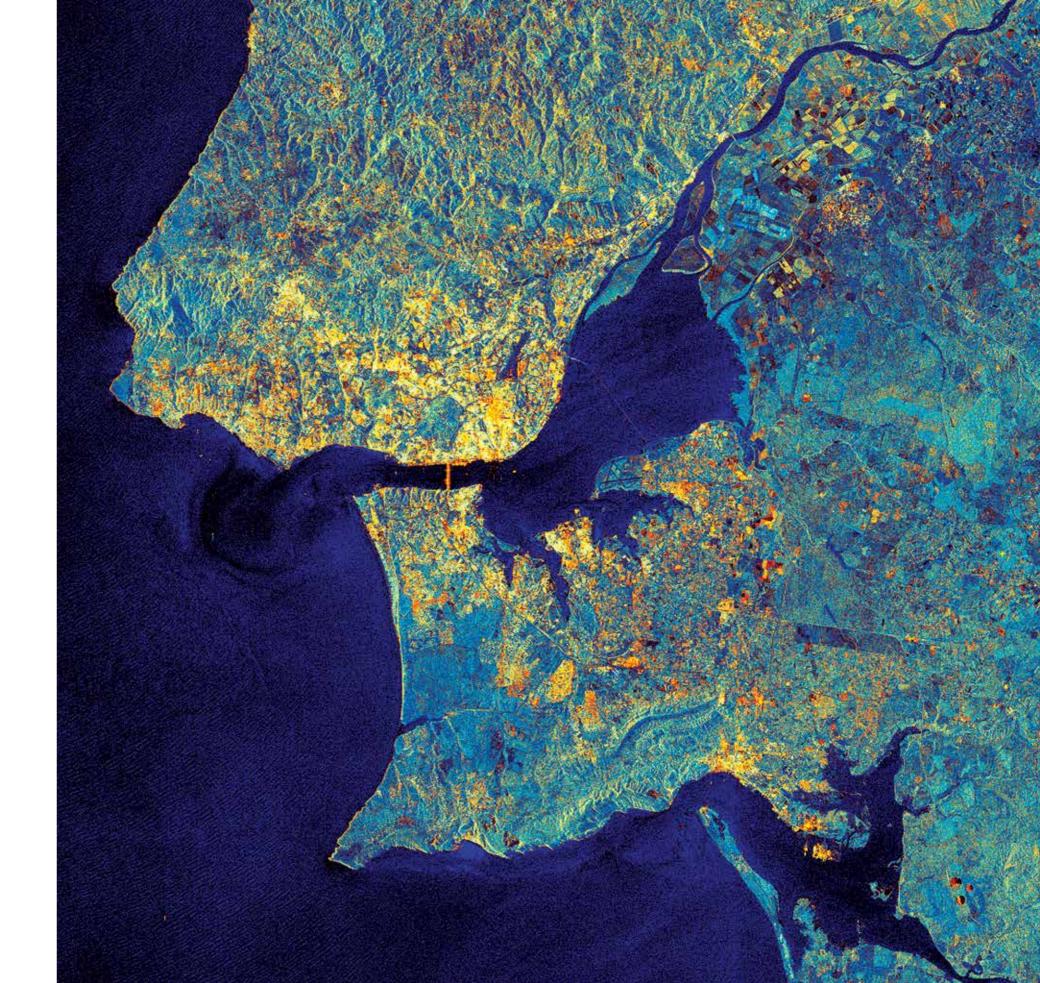
In this context, space technologies are indispensable for the future of Humanity, requiring continuous investment in education and culture for Space in order to attract future generations more and more, through the dissemination of educational, scientific and cultural contents to populations in remote areas and with difficult access to knowledge about Space.

That objective should be attained by making the best use of national participation in ESA and in the European Union, as well as the participation in international scientific organisations such as the European Southern Observatory and the European Meteorological Satellite Organisation (EUMETSAT), or in international organisations that are now being established (such as is the case of the Square Kilometer Array – SKA).

Therefore, research, development and advanced training initiatives should be strengthened enabling the sustainable and long-term development of all activities related to Space in Portugal, which means namely:

- Increasing the participation of research institutions and companies in ESA and European Union programmes. This includes:
  - Supporting science and technology development and innovation and the participation of Portuguese partners in key segments of space technology, space services and applications value chains at European and global level;
- Encouraging technical skills, training and attracting qualified human resources and promoting activities in collaboration with European and international partners.
- Reinforcing the collaboration of the Portuguese space scientific community with international partners and with industry enabling advances in the understanding of the Universe, Earth sciences, space exploration and space weather, among other scientific areas;

 Bearing in mind that Space naturally inspires the fascination and enthusiasm that lead young people to take an interest in disciplines in science, technology, engineering and mathematics, continue to support education, scientific culture and awareness-raising activities aimed at all citizens, particularly students and educators, so that future generations of scientists, engineers and managers are attracted to participate in space activities.



# FRAMEWORK **PROGRAMME FOR ACTION FOR SPACE**

For the development of the three axes mentioned above, the Portugal Space 2030 Strategy calls for the development of a framework programme involving five lines of action - legal, financial, institutional, internationalisation, and scientific culture.

#### LEGAL FRAMEWORK

Creation of a regulatory regime and adequate implementation of specific legislation applicable to space activities to be developed in Portugal.

#### **OBJECTIVE**

Stimulate economic activity and scientific and technological development, attracting foreign investment and mobilising national and foreign actors, as well as facilitating the possible establishment of satellite launch services in Portugal, including a spaceport, with adequate and internationally competitive regulation.

#### **MEASURE**

Create a competitive legal regime at international level, taking into account the comparative experience of countries such as the United Kingdom, France and Luxembourg, among others.

#### CALENDAR

- Preparation, public discussion and approval of the bill proposed by the Council of Ministers - until September 2018;
- Discussion and approval by the Assembly of the Republic until June 2019.

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#### 2 FINANCIAL FRAMEWORK Stimulating an investment strategy

- Complementing and extending the current level of public investment in ESA, financially supported through FCT, I.P., with the support of IAPMEI and ANACOM;
- Adjusting the use of structural funds and public funding programmes for the development and capacity building of the space sector so that investment in the sector can reach a multiplication factor of five over the next five years;
- Promoting the diversification of investment sources, including access to the European Investment Bank, among other international funds;
- Attracting direct foreign investment within the framework of existing tax benefits and incentives, especially for the possible establishment of space launch services and the creation of promising partnerships in the area of Space.

#### 3 INSTITUTIONAL FRAMEWORK

Facilitate and promote institutional development with a view to creating

- A "regulatory agent" for space activities in Portugal, in charge of carrying out actions to monitor and regulate space activities in Portugal, in line with the draft bill on access to and exercise of space activities;
- An adequate and specific "promoter" for the Space sector, with a view to the future creation of the Portuguese Space Agency, taking the form of a "mission structure" (estrutura de missão).

The "mission structure" has, among other competences, the mission of preparing the creation of the space agency with the support of ESA, international experts and involving the main national actors, considering two distinct and independent but interlinked lines of action: the promotion of investment and the provision of services. It shall in particular ensure a financing strategy for the Agency, including:

- Promote the new antenna of 15 meters to be installed in the island of Santa Maria, which will be owned by FCT, I.P.;
- Promote services related to the development of the European SST programme in Portugal;
- Explore the possibilities of creating a data centre of the Copernicus programme in Portugal, providing data dissemination services as well as the possibility of hosting other terrestrial infrastructures associated to the Galileo programme;
- Encourage interface institutions to promote technological capacity and qualified employment, including the establishment and promotion of a space consortium in the form of a collaborative laboratory (CoLAB), based on international best practices;
- Continue to support and strengthen R&D units and Associated Laboratories with relevant scientific and technological intervention in the area of Space;
- Continue to support and strengthen support services for the incubation of new technology-based companies with relevant intervention in the area of space, in close collaboration with ESA.

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#### 4 INTERNATIONALISATION FRAMEWORK Strengthen an internationalisation strategy

- Development and promotion of the Atlantic interactions agenda, according to the Resolution of the Council of Ministers no. 29/2018, of 12 March;
- Development and promotion of an agenda for the Mediterranean, ensuring the integration of spatial data for agro-industrial development, energy sustainability and water management, through cooperation with countries in North Africa and the Middle East, in particular in the context of the emerging PRIMA Programme (Partnership for Research and Innovation in the Mediterranean Area) at European level;
- Ensure a diversified range of international partnerships with countries
  where space capabilities already exist, including through agreements
  and protocols, for the development of space infrastructures and
  space-based services and applications;
- Strengthen and initiate new international partnerships with countries
  that do not yet have, or that are in the process of developing, space
  capabilities targeting educational actions, exploiting satellite data
  and sharing the benefits of using space technologies in terms of
  socio-economic development, with and emphasis on international
  cooperation with countries in Africa and South America.

### **5** FRAMEWORK FOR EDUCATION AND SCIENTIFIC CULTURE FOR SPACE Strengthening a humanist strategy for Space

- Promote and disseminate programmes for the dissemination of scientific and technological culture for Space, namely deepening and broadening the scope of those already developed by the Agência Nacional "Ciência Viva" through the European Space Education Resource Office (ESERO) of ESA;
- Continue to support and participate in ESA and NASA technology traineeship programmes, enlarging them to include other space agencies, as deemed possible, and in a manner that is suitable for those space agencies;
- Encourage the enrichment of school curricula with space-related educational materials and space technologies, with a particular focus on their applications in a variety of fields, such as Earth observation and communications;
- Launch and promote an Internet portal that provides public access to information on space programmes, scientific and technological activities, satellite image dissemination resources, training opportunities, exhibitions and conferences, among other contents.



#### PORTUGAL SPACE 2030

Approved by the Council of Ministers' Resolution n.º 30/2018 Available for download at ptspace2030.pt

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#### COVER IMAGE

Thomas Pesquet ESA/NASA

#### PUBLISHING DATE

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