

Portuguese Space Agency

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A Bit of History

PoSAT-1, the first Portuguese satellite, was launched into orbit on September 26, 1993, on the 59th flight of the Ariane 4 rocket.

The launch took place in the Kourou Space Centre, French Guiana. About 20 minutes and 35 seconds after launch, at an altitude of 807 km, PoSAT-1 separated itself from the rocket.

The PoSAT-1 weighed about 50 kg.

The total cost was around €5 Million, about €3 Million paid by the Portuguese Government and €2 Million by the Portuguese companies involved (Po-SAT consortium: INETI, EFACEC, ALCATEL, MARCONI, OGMA, IST, UBI and CEDINTEC).

The scientist responsible for the project was Prof. Fernando Carvalho Rodrigues

HISTORICAL OVERVIEW

- 2000 - Portugal becomes member of ESA**
- 2001 - Small number of SPACE players in Portugal (Less Than 10)**
- 2002 - FP6 includes SPACE as AERONAUTICS topic with 145 M€ budget**
- 2006 - FP7 includes an independent SPACE Theme with 1400M€ budget**
- 2007 - Lisbon treaty defines SPACE, GMES and GALILEO as Fundamental Pillars**
- 2009 - GMES Programme consolidated and Launched**
- 2010 - PT SPACE sector earned 7.5 M€ from FP (1,5xPT contribution to EU)
PT SPACE sector ESA+FP has grown to more than 50 players
PT leads the GMES and Africa initiative from EU side**



PORTUGUESE RESULTS IN FP SPACE FP6+FP7 (2004-2010)











During the period from 2000 to 2009 the space sector investment by Portugal was on average 74% in ESA, 21% in EUMETSAT and the remaining in other institutions and initiatives. Since 2000 there has been a large increase in the number of space players both from business and academia. As an indicator of the research activities the number of space research projects funded by the European Union Framework Programmes where Portuguese institutions participate has increase by a factor of five from 2000 to 2010. In ESA 91.3% of the projects come from businesses and 8.7% from academia. In 2009 ESA contracts with Portuguese business companies were 21% in telecommunications, 39% in Earth Observation and 19% in science.


Table 3 - Comparison between companies and academia in ESA contracts

Companies	Academia
<ul style="list-style-type: none"><li data-bbox="54 347 994 454">❑ 57 companies developed projects with ESA with a total budget contracts reaching more than 86 M€.<li data-bbox="54 475 994 646">❑ They represent 75% of the total number of entities that have been working with ESA since 2000 (66 entities)<li data-bbox="54 668 994 775">❑ The total amount represents 91% of the total contract sum between 2000 and 2009.	<ul style="list-style-type: none"><li data-bbox="1033 347 1866 454">❑ 19 Academia worked in ESA projects, representing almost 9 M€.<li data-bbox="1033 475 1866 582">❑ They represent 25% of the total Portuguese players with ESA contracts since 2000<li data-bbox="1033 604 1866 711">❑ Their contract value represents 9% of the total contract sum between 2000 and 2009.

Table 2 – Evolution of key indicators characterising Portugal’s participation in ESA

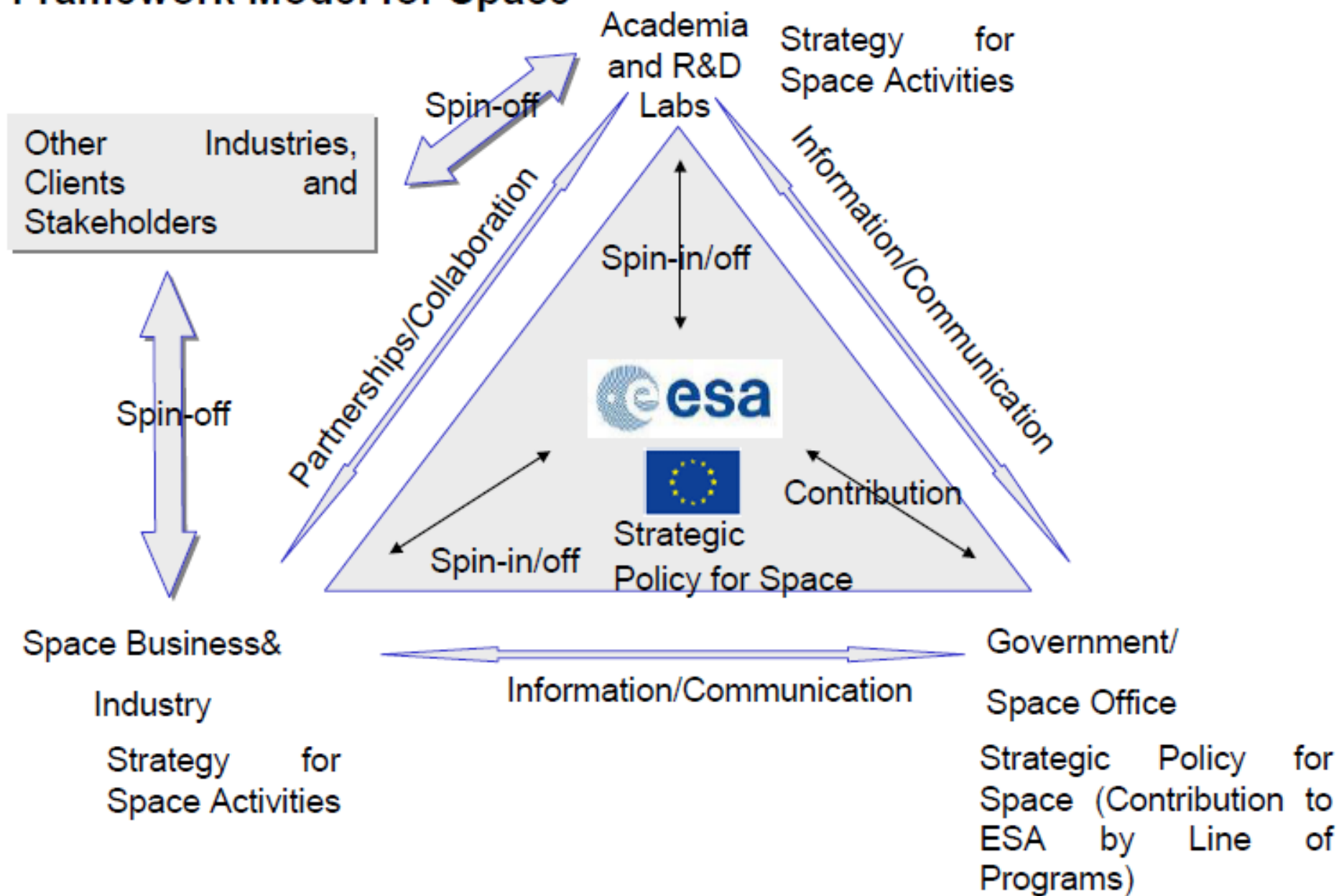
	Key Indicators	2000	2009	Impact
ESA	Contribution to ESA	4,6 M€	15,7 M€	
	Geographical Return	23%	99%	
	Number of contracts with ESA	4	58	
	Total value of Portuguese contracts with ESA	1,0 M€	17,6 M€	
	Total number of organizations developing ESA projects	4	28	
	Average value of Portuguese contracts	250 K€	303 K€	
	Trainees at ESA	77		

 High impact

 Low impact

The Portuguese investment in ESA space programmes in the period 2000-2009 had a **spin-off factor** of 2, which was rather low. From 2009 to 2018 it increased to 3.

Framework Model for Space



**Santa Maria station
5.5m antenna, 2008**



The Santa Maria S-band station, also known as 'Montes das Flores' (Hill of Flowers), is located on the island of Santa Maria, in the Azores some 1500 km from Lisbon. Santa Maria is one of the first Estrack stations with launcher tracking capability and is used to receive real-time telemetry from launches originating from ESA's spaceport in Kourou, French Guiana. It is capable of tracking Ariane 5, and was first used to track the launch of ESA's Automated Transfer Vehicle (ATV) *Jules Verne* in early 2008.

In the near future, Santa Maria will be upgraded to receive signals in X-band (8025-8400 MHz) as well; this will enable the station to receive data and telemetry from a number of ongoing Earth observation satellites, including Canada's Radarsat, among others.

When not used for launch tracking station is used in CleanSeaNet and MARISS service for Copernicus Programme

The Portuguese Space Agency, named Portugal Space, was established by a Resolution of the Council of Ministers on 7 March 2019 (Resolução do Conselho de Ministros n.º 55/2019 de 7 de março).

It is a Not-for-Profit Private Law Association, with its Headquarters in the Island of Santa Maria in the Azores Archipelago, and incorporates the Foundation for Science and Technology, of the Ministry for Science and Technology and Higher Education, the National Agency for Innovation, which also involves the Ministry of the Economy and the Resources Department of the Ministry of Defense.

***Portugal Space* will be built up in a stepwise approach, with funds to be made available from both public (government) and private sources, at national and international levels.**

The total public investment planned for the period 2019-2021 is 11.7 M Euros.

Portugal Space has the responsibility of implementing the previously established **Strategy Portugal Space 2030, approved in March 2018.**

Strengths and Opportunities and Impact of the current Space Sector context for Portugal

Specific strengths are:

- **Unique geographic location of the Azores on the Atlantic;**
- **Dynamic entrepreneurial ecosystem for start-ups;**
- **Maturity of the Portuguese space industry (so far mostly in the software domain), with the existence of a Space-Aeronautics-Defence Cluster since 2017;**
- **Growing economy of the country;**
- **Development of the INFANTE micro-satellite constellation for Earth observation applications (<http://www.infante.space/>);**
- **Significant number of young space scientists and engineers and pool of creativity and enthusiasm;**
- **Participation in the European consortium for Space Surveillance and Tracking, with assets in the Azores Islands;**
- **Presence of the European Maritime Safety Agency in Lisbon;**
- **Establishment of the Atlantic International Research Centre, AIR CENTRE (<https://aircentre.org/>), for south-north cooperation; The Air Centre Centre integrates SPACE, ATMOSPHERE, OCEAN, CLIMATE, ENERGY and DATA SCIENCE to address the Global Challenges in the Atlantic Ocean**

In terms of space sector specific competences available in Portugal, its industry has evolved and reached a maturity level that allows it to tackle end-to-end projects in the following domains:

- **Space Software (on-board and modelling)**
- **Space Hardware components and instrumentation**
- **Ground Segment components and software**
- **Space-Based Services and Applications**

Activities

In addition to on-going and operational activities, such as in the field of Space Surveillance and Tracking (SST), any new development in Portugal should thus be built upon the following principles:

- Respond to strategic guidelines defined in Portugal Space 2030, established in 2018;**
- Respond to the high level objective set above;**
- Ensure negligible environmental/safety impact on ground and in space;**
- Invest towards significant socio-economic benefit;**
- Embrace partnerships nationally and internationally;**
- Implement the *AZORES International Satellite Launch Programme (AZORES ISLP)*,**

All these aspects justify aiming for a 6-fold increase of Portuguese Space budgets in the next years.

Funding and Capital Raising

To secure funding from both private and public sources:

- Stimulate venture capitalist investments for emerging new companies through marketplace activities via dedicated but also existing platforms;**
- An active engagement in European programs, particularly in research and innovation, space, defense and digital, in close cooperation with the team of professional national Delegates to the EU Framework Programmes;**
- Managing and promoting the Azores International Satellite Launch Program, Azores ISLP, as a way to foster new markets;**
- To promote the creation of a Space Fund (matching fund) to foster investments in new space technologies and proof-of-concepts, developed by start-ups, including spin-offs from the academic and R&D system;**

Thank you for your attention

- The agency is designed as a network of public entities and stakeholders, space and non-space, connected according to the needs of each successive initiative and project;