

Portuguese industry sales to the international technological development and research institutes – CERN, ESA and ESO¹

Sales of goods and services to CERN

(European Organization for Nuclear Research – www.cern.ch)

Portugal has been a member of CERN since 1985, although it was only in 1986 that it became a full Member-State. In addition to participating in the scientific activities of the organization, all the Member-State's companies are entitled to bid for providing goods and services to CERN open market tenders. Every year CERN publishes a report on purchasing during the previous year that measures the performance of the Member-State's companies under the so called Industrial Return (IR)².

To boost sales by national companies to CERN, AdI had a mandate to act as Industrial Liaison Officer to CERN from 1997 to 2007. This function included fostering the supply of goods and services by Portuguese companies to CERN, the transfer of technologies developed by and belonging to the organization to Portuguese companies, and the upgrade of their technological base to successfully bid for contracts.

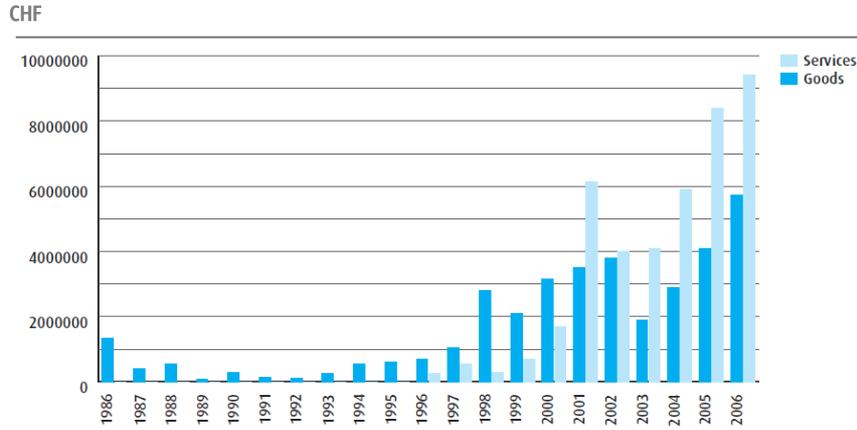
From the time Portugal joined CERN until 2006, Portuguese companies have exported to CERN goods and services worth over 76 million Swiss francs, that is, around 53 million Euros.

Up to 2006, Portuguese companies exported to CERN goods and services worth over 53 million Euros.

¹ Extract from the report "Agência de Inovação - Results – Technological traineeships at CERN, ESA and ESO", Agência de Inovação, July 2010. The report is available for download on the site of Agência de Inovação at <http://www.adi.pt/EstagiosInternacionais.htm>

² Industrial Return (IR) – Defined as the return coefficient of a Member-State for supply contracts for a given 12-month period starting on 1 March is defined as the ratio between that Member-State's percentage share of all purchases of goods (including R&D contracts) during the proceeding four calendar years (excluding utilities and purchases funded by non-Member States) and that State's percentage contribution to the budget over the same period. There is an equivalent definition for the return coefficient of a Member-State for industrial services. (Source: CERN doc. 2198 and 2279).

Sales of goods and services by Portugal to CERN



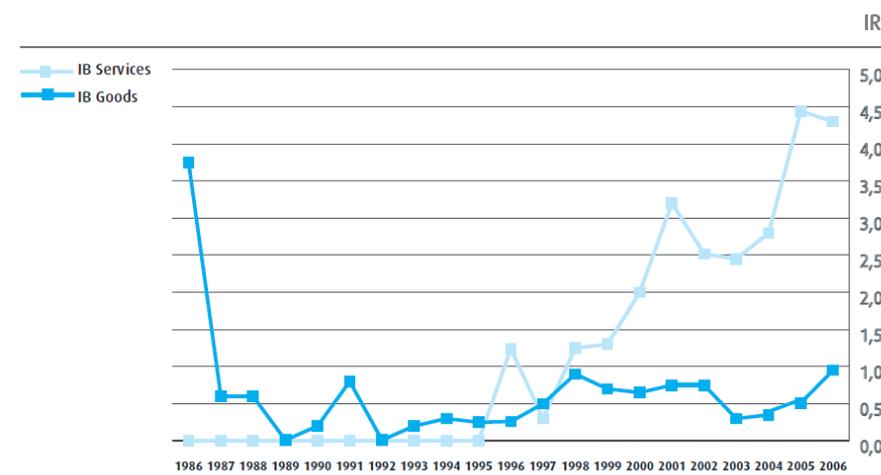
Source: AdI, MCT – Ministry for Science and Technology, 2007

The first graph shows the trend in these exports for both industrial goods and services.

The second graph contains the industrial return for goods and services.

Our position in terms of Industrial Goods was quite stable, oscillating around a central position in the group of twenty Member-States (9th or 10th). In terms of Services, Portugal achieved a much higher position, with an industrial return that has maintained a steady second place after Switzerland, which along with France, is one of the host states for CERN.

Industrial Return (IR) of Portugal at CERN



Source: AdI, MCT – Ministry for Science and Technology, 2007

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**PORTUGUESE COMPANIES WITH THE HIGHEST LEVELS
OF SUPPLIES OF GOODS AND SERVICES TO CERN**

Name of company	Goods / Services supplied
A. Silva Matos – Metalomecânica, S.A. www.asilvamatos.pt	Cryogenic Containers (helium)
Alfredo Cardoso & CIA Lda. www.alfredocardoso.pt	Mechanical components
EFACEC www.efacec.pt	Electrical control and command systems
EUROISO – Ind. Metalomecânica, Lda.	High precision mechanical components
Hidrotécnica Portuguesa	Civil engineering consulting
I.S.Q. - Inst. de Soldadura e Qualidade www.isq.pt	Quality control
Precisomatic, S.A. precisomatic.social.com.pt	High precision mechanical components
SETROVA www.setrova.com	International logistics
SIROCO www.siroco.com.pt	Dedicated robotics for H.C. (design and development)
TUBOPLAN www.boccard.com	Piping
VELAN www.velan.pt	High Tech Cryogenic Valves

Source: AdI

What is even more important than measuring the Industrial Return gained from our participation in CERN is that these figures represent the technological development of the suppliers, their international competitiveness and the importance for them and for their country's image of the experience gained in an institution where the required standards are always higher than the highest market standards.

It should be noted that a substantial part of these sales is in turn associated with the transfer of CERN technology to Portuguese companies and, in some cases, joint development to respond to specific challenges.

This success is due to the competence, dedication and persistence of the people at Agência de Inovação (AdI) who carried out this task, working with other industry support mechanisms such as the support programme for Research in Consortium and capitalizing on the network of relationships which was gradually built from the beginning using the trainee placement programme.

Sales of goods and services to ESA³ (European Space Agency – www.esa.int)

Portugal formally began its co-operation with the European Space Agency (ESA) in 1996 when it became a co-operating Member-State.

At the end of 2000, Portugal became the fifteenth Member-State of the ESA, and thus able to reap the benefits of its participation in the core group of mandatory Agency Programmes (fundamental technological programmes and the science programme), as well as of the optional programmes it decided to join. Initially, Portugal only joined the optional programmes in Telecommunications and Navigation, but gradually began taking part in other programmes in the fields of Robotic Exploration and Earth Observation, among others.

Between 2001 and 2007, a mechanism entitled “Portuguese Industry Incentive Scheme” was set up. This mechanism introduced competitive conditions aimed at the national scientific and industrial community with a view to adapting it to the Agency’s procurement system. It was headed up by a Task Force comprising members of the national delegation and ESA staff.

In this context, the existence of a training programme that could provide human resources with the technical skills necessary for space technology development took on major importance, accompanying the growing involvement of the national industrial and scientific community in ESA activities.

The Portuguese ESA trainees contributed actively to making the Task Force period particularly productive due to:

- their entrepreneurial capacity to create national companies in the space sector (such as Omnidea, Active Space, UAVision and Terradue SrL).
- their integration in companies and laboratories which led to their active participation in ESA space activities in recent years.
- the integration of these human resources within the ESA group of workers, thereby naturally fostering a greater approximation between the Agency and the national space community.

According to ESA data, national companies have received more than 50 million Euros in financing for the development of the Agency’s activities, which

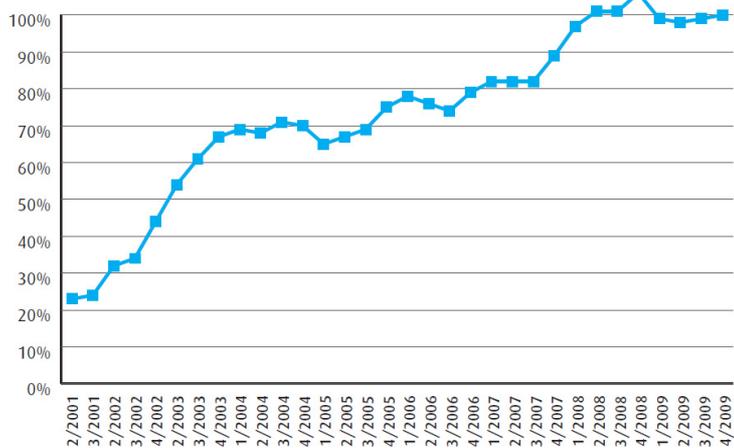
³ Information from the FCT (Foundation for Science and Technology) Space Office, “*Economic Impact of Portugal participation in ESA*” (http://spaceforum.fct.mctes.pt/docs/Impact_Study_Portuguese_Participation%20in_ESA.pdf).

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corresponds to a 100% return coefficient. The function of liaison officer for the ESA is carried out by the FCT.

The past ten years have been very positive and this is clear from the Portuguese industrial return coefficient⁴ in ESA activities. The following graph shows such development.

Variation of the industrial return coefficient at the ESA per quarter between 2000 and 2009



Source: FCT (Foundation for Science and Technology) Space Office

Sales of goods and services to ESO
(European Southern Observatory – www.eso.org)

Portugal entered into a Co-operation Agreement with the ESO in July 1990, applied to become a full member in 1999, and signed the Adhesion Agreement in December 2000.

Since Portugal joined the ESO up until 2006, Portuguese companies have supplied over 2.5 million Euros in goods for such noteworthy projects as the ALMA⁵ and

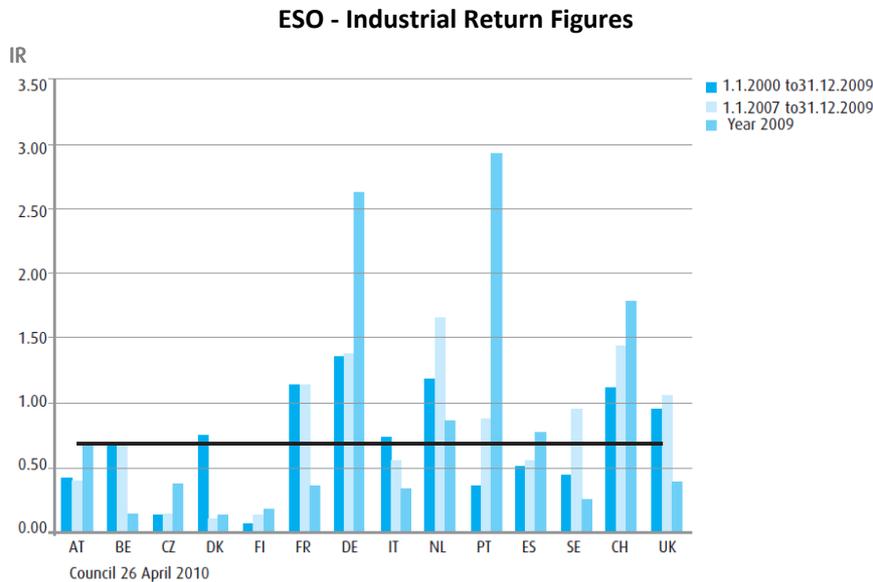
Up to 2006, Portuguese companies have supplied over 2.5 million Euros in goods to ESO projects.

⁴ The industrial return co-efficient is calculated from the quotient of the total financing amount for activities carried on by national companies and the total national contribution to all the ESA programmes indexed to the progress of the programme at any given time. The term “industrial” is used here quite broadly and refers to all the ESA’s technological activities, whether they are carried out by the private sector (companies) or state entities (R&D institutes and laboratories).

⁵ ALMA - the Atacama Large Millimetre/submillimetre Array is the largest current astronomy project <http://www.eso.org/public/portugal/astronomy/teles-instr/alma.html>).

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the E-ELT⁶. Recently, Solidal, S.A. (www.solidal.pt) won the tender for the supply of electric cables to ESO in the Republic of Chile.



Source: AdI, MCT – Ministry for Science and Technology, 2010

Scientific and training benefits

In addition, Portugal has pioneered traineeship programmes in these international scientific and technological organizations. AdI signed protocols with CERN (27 September 1996), ESA (12 May 1997) and ESO (15 May 2001) with a view to holding training programmes at these institutions for young engineers in strategic technological fields in order to increase the competitiveness of Portuguese companies. Since then, a total of 273 (CERN-162; ESA-101; ESO-10) Portuguese young engineers have already benefited from these traineeships.

⁶ E-ELT - European Extremely Large Telescope: this new revolutionary ground-based telescope will be 42 metres in diameter, becoming the largest optic/infrared telescope in the world – “the biggest eye in the sky” (<http://www.eso.org/public/portugal/astronomy/teles-instr/e-elt.html>).