



Welcome to Space

ESA's Strategy for Retaining European Space Competencies

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How often do you hear that the main asset of an organisation is its people? It sounds like a cliché, but this could not be more true for the European Space Agency. Our reputation of technical excellence has been built by generations of highly talented people, but finding new qualified candidates to continue this success story is becoming harder.

The success of ESA is largely due to a group of highly educated and motivated scientists and engineers, some recognised as world experts in their disciplines. Together with supporting specialist financial, legal and administrative staff, they make up the 'human resources' of ESA.

Historically there has always been a large and diverse pool of technical talent, both within European space industry and research institutes, from which ESA could draw to fill its vacancies. There has also typically been a very high interest from within the space sector in working at ESA.

However, finding qualified candidates for some specific technical areas is becoming increasingly difficult. Finding ourselves competing against our own

	2004	2005	2006	2007
Austrian	2		1	2
Belgian	2	2	4	7
British	7	7	14	26
Canadian	1	1	4	3
Danish	3			2
Dutch	2	4	1	9
Finnish			2	3
French	14	19	19	33
German	17	14	25	36
Greek		2	1	5
Irish	2	2	1	2
Italian	11	6	8	16
Norwegian	2			2
Portuguese	1	3	3	5
Spanish	7	11	1	7
Swedish			4	2
Swiss	1	1	2	4
Total	72	72	90	164

Number of staff recruited into permanent posts by nationality from 2004

partners in the search for talent, we have introduced a number of internal and external measures to tackle these issues.

Market Forces

For some years now, Europe has been witnessing a relative decline in the number of university students enrolling in engineering and scientific disciplines. The Organisation for Economic Cooperation and Development (OECD) published a Policy Report in May 2006 in which it evaluated student interest in science and technology studies.

According to this report, most OECD economies have experienced a large increase in the number of students in higher education over the past 15 years, but the proportion of these students in science and technology has steadily decreased during the same period. Some disciplines, such as mathematics and physical sciences show particularly worrying trends*. This has a clear impact

on the number of engineers and scientists entering the employment market.

In the global arena, the competition to find talent is becoming fierce. There are new space powers, such as China and India, which are rapidly gaining expertise. There has been growth within the Russian space programme and new exploration initiatives from the United States. Due to this globalisation of the space sector, the sustainability and competitiveness of European industry is more at risk than ever before. Despite significant restructuring, there has been pressure on the profitability of the European space industry and consequently a reduction of the workforce.

Competition in the employment market in general to hire and retain the best talent is increasing. Large companies such as EADS, Siemens, Alcatel

* Organisation for Economic Co-operation and Development Global Science Forum, Evolution of Student Interest in Science and Technology Studies Policy Report, May 4, 2006

and Daimler AG, for example, make a great effort to gain the attention of potential pools of talent and market themselves as employers of choice.

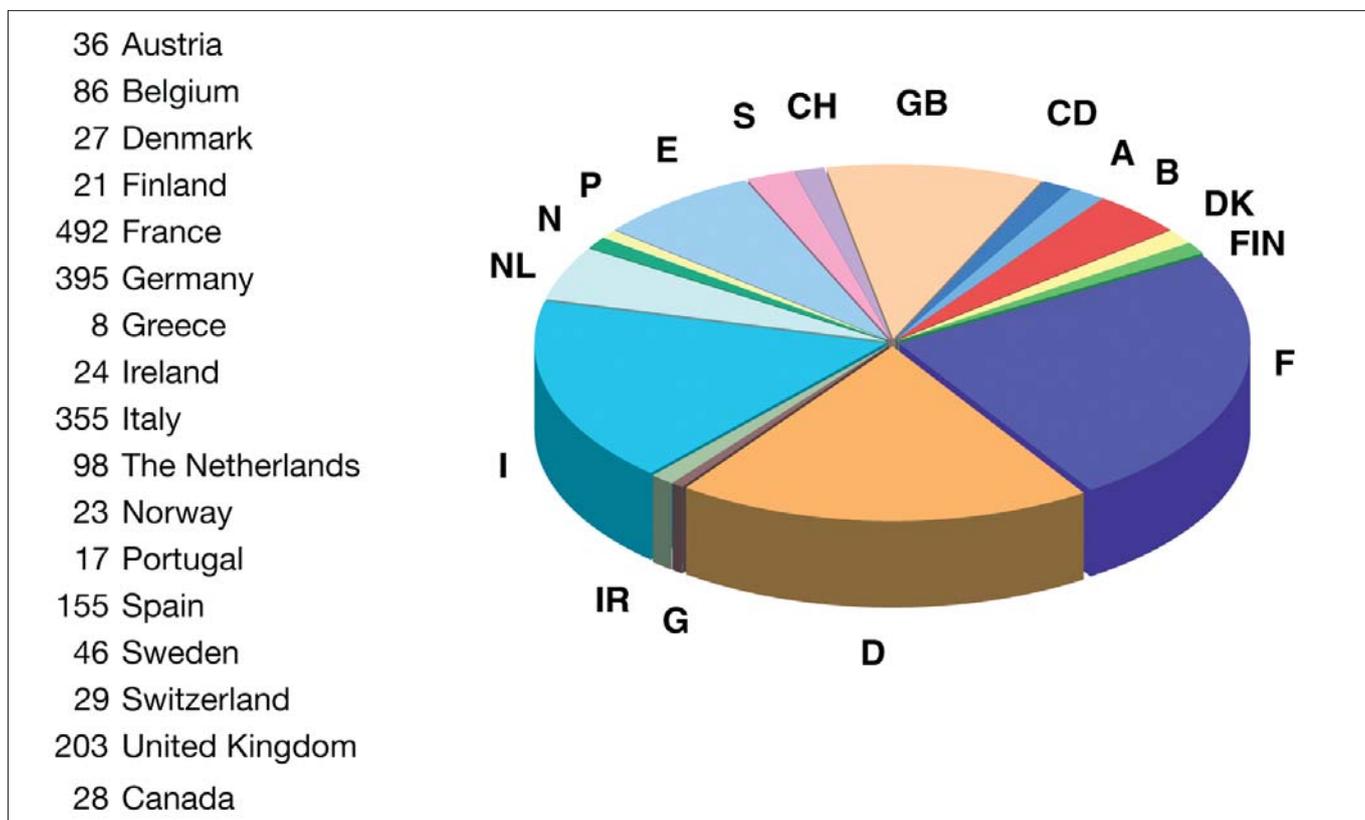
The nature of the required technical skills at ESA is also evolving. We have had to reinforce competencies associated with co-funded ESA-European Commission (EC) security related programmes, like Galileo and Global Monitoring for Environment and Security (GMES). ESA now participates in developments for the commercial market, such as AlphaSat, Small Geo and Hylas.

The ESA Director General's 'roadmap' for the agency (Agenda 2011) also promotes the importance of integrated applications based on a multi-disciplinary approach as an alternative to the single-system approach that ESA adopted in the past. All these evolutions contribute to a changing demand for certain skills, such as architecture design, software engineering, systems engineering, operations, multi-domain modelling and simulation of complex systems.

Recruitment Trends

In 2006, we advertised approximately 336 vacancies and 12% of these had to be re-issued, mainly due to a lack of qualified candidates. In some cases, the chosen candidate declined the offer and there was no suitable back-up candidate. In some extreme cases, re-issuing the vacancy was necessary following two unsuccessful rounds of interviews.

One of our recruitment challenges at ESA stems from a policy to maintain an appropriate balance of nationalities from our Member States. The number of external candidates hired from 2004-07 can be found by nationality in the chart (above left). Candidates who are nationals from ESA's over-represented countries are not typically invited for the first round of interviews. This dramatically reduces the initial pool of qualified allowable candidates. However, nationals from over-represented countries can be considered if a second round of interviews is necessary.



Total ESA permanent staff in 2008, proportional by nationality

An additional consideration for ESA is that of gender equality. We introduced an Equal Opportunities and Diversity Policy in 2002, and one of the main objectives was to increase the number of women in scientific and technical positions. There has been an 8% increase in the total number of women in professional positions between 2006 and 2007 and the number of women in senior management positions has increased by 35%.

There are ten directorates at ESA; five programme and five support directorates. Two of the support directorates, the Directorate of Technical and Quality Management (D/TEC) and the Directorate of Operations and Infrastructure (D/OPS) accounted for nearly 50% of all vacancies issued in 2006. Of the 82 staff hired for D/TEC, most were for technical posts and 83% of the vacancies were filled with external candidates. D/TEC is typically the entry point for many newcomers to ESA as well as being the

heart of ESA's research and development activities. This is therefore the Directorate most affected by the shortage of competencies.

The technical specialisms in short supply in D/TEC are power supply and power conditioning engineering, tracking, telemetry & command, radio navigation, component engineering, telecommunication engineering, on-board software and quality and product assurance. For D/OPS the critical areas are operations engineering and flight dynamics. For most programme directorates, there is a critical shortage in systems engineering with a multi-disciplinary approach. Fulfilling the requirements in these areas continues to be a concern for us in the foreseeable future.

Acquiring Competencies

Until now, we have relied almost exclusively on our external career web site to attract candidates. The vacancies page still remains one of ESA's most

visited pages on the ESA Portal, receiving an average of 27 000 hits a month. Employees in space industry, research institutes and universities in Europe and Canada dedicated to space research and development generally know ESA, because they often work on ESA funded programmes. This 'inside knowledge' ensures a familiarity of ESA not normally found in other organisations. An active effort in employer branding was therefore not necessary in the past. Due to an increasingly tight labour market in recent years, however, it has become necessary to find alternative and more proactive ways to attract talent and to ensure that critical competencies can be shaped or cultivated from ESA's existing skills base.

Internal Solutions

Training and Development of Current Staff

We have always recognised the importance of training and developing our



Shrinking world: In the global arena, competition to find talent is becoming fierce

staff members. An extensive catalogue of courses and programmes has been designed and implemented to enhance employees' technical and managerial proficiency and to support career development.

There is now a much greater emphasis placed on training with for example the proposed mandatory training for newcomers. With this initiative that is now being piloted in (D/TEC), all new staff will complete a training programme within the first two to three years after joining ESA. It includes information sessions on internal ESA processes, such as finance and procurement, as well as courses on space systems engineering. It also includes management development courses for newly appointed managers.

Training alone cannot solve the shortage of certain competencies. It is only through hands-on experience that someone can become proficient in a particular area. Many managers unfortunately are not always able to

provide on-the-job training to the extent necessary for inexperienced staff to obtain the skills and competencies required to do the job.

Knowledge Sharing

The ESA 'A5 Ad Personam' scheme, established in 2000, has established a group of experts within ESA to cover the spectrum of space-related technical and scientific domains relevant to ESA's programmes (A5 is a level in ESA's grade system). An added benefit of this scheme is to provide recognition and career advancement for staff who have built up technical or scientific expertise. Before this, the only possibility for people to progress to higher grades was to apply for A5 posts with managerial responsibilities. Now staff can continue developing further within their area of expertise without having to take on managerial tasks.

With this recognition also come certain obligations and responsibilities. One of the criteria on which 'A5 Ad

Personam' applicants were judged was their proposal for a personal contribution to the future role of ESA. This implies an obligation to lead and continue to actively contribute to further technical or scientific achievements in areas of relevance and major interest for ESA. During 2008, each A5 Ad Personam member will develop and deliver a general lecture for ESA staff about the specialisation for which they have been recognised.

These knowledge transfer initiatives will help to address the so-called 'brain-drain' when experienced staff retire, by retaining some of the accumulated experience and know-how and preserving some critical competencies that might otherwise be lost.

Reorientation of Young Graduate Trainee Scheme

ESA's Young Graduate Trainee (YGT) Scheme, operating successfully for over 20 years, offers recent graduates a unique opportunity to gain one year of valuable hands-on experience in engineering or scientific work. Trainees leave after this year to work within European space industry, but many ex-trainees then return to ESA with 5–10 years of industry experience, better equipped to manage and monitor industrial contracts.

One way to overcome some of the shortages in ESA's core competencies in the short to medium term could be a revision of the existing YGT Programme. One of the options being considered is to provide a greater number of training opportunities in the technical areas where we are experiencing critical shortages. The best of these trainees could be offered a second year either in ESA or within industry.

A cooperation agreement could be reached with various industrial partners with the understanding that after a second year in industry, the trainee would return to ESA for further training and eventual hire. A dedicated allocation of advanced recruitment opportunities could be set aside to ensure that ESA can further benefit

from their acquired expertise. This programme could be further strengthened by the inclusion of a training plan covering ESA's core processes.

External Solutions

Exchanges with Industry and Secondments

A series of staff exchange programmes between ESA and space industry are currently being evaluated. Following the signing of a secondment convention between ESA and EADS, we are now pursuing possibilities to exchange staff between the two organisations. Similar conventions could be discussed with other corporations, such as Thales Alenia.

These exchanges are aimed at developing highly competent staff members, whose experience, knowledge and skills will be further strengthened by this experience. The main focus of this secondment exercise will focus primarily on ESA staff in their early careers or whose background does not yet include industrial experience. In exchange, ESA is discussing with EADS the possible placement of experienced professionals who could provide support in areas such as satellite operations.

There are also an increasing number of staff being seconded to and from other affiliated organisations, including

DLR, The Group on Earth Observations (GEO), the French Aerospace Research Centre (ONERA), the European Commission and European Southern Observatory (ESO). These secondments are designed for the mutual benefit of both parties.

Coverage in Media

Whenever appropriate, ESA advertises in newspapers, specialised trade publications and job web sites. Although this type of advertising has higher costs associated with it than ESA's usual methods, these campaigns reach a market with a total circulation of over two million readers.

In November 2007, we carried out a widespread media campaign and placed a number of print and web advertisements in prominent newspapers and publications in countries where we have an under-representation of staff, including Germany, UK, Belgium, Norway, Switzerland and Luxembourg.

The results of this campaign will show its benefits in early 2008, both in quantitative and qualitative terms, but in the past these types of campaigns have further increased the number of applicants who apply.

We also promote ESA by contributing articles to the careers sections of European newspapers, such as the German *Frankfurter Allgemeine Zeitung*

and the *Süddeutsche Zeitung*, and the UK's *The Independent* and *The Guardian*. In addition to these activities, we also organise and participate in a number of workshops, round-table discussions and international career days in coordination with foreign ministries.

Job Fairs and Promotional Campaigns

We have been taking part in organised careers fairs since 2001. The first fairs were in Germany and Switzerland, but we now attend around 15 fairs per year across Europe. Here we can make contact with an average of 70–120 potential candidates per day at most job fairs.

More than 30 promotional campaigns have also been organised since 2002 in Germany and Switzerland, as a co-operative effort between ESA, the German Aerospace Center (DLR), the Swiss Space Office (SSO), representatives from space industry and the relevant foreign ministries. These campaigns have reached thousands of young professionals interested in working in the space sector and, more specifically, for ESA.

All these efforts have had quantifiable results. According to a leading European institute specialising in human resources marketing, in annual surveys to determine which employers are considered the most attractive, we did not even rank among the top 100 companies up to 2002. Since 2003, ESA is consistently ranked in the top 20.

Outlook

ESA cannot afford to be complacent as competition will only increase. These internal and external initiatives will help to ensure the continuity and availability of a highly qualified and motivated workforce that will, in turn, play a critical role in strengthening the position of ESA in the European space sector. These initiatives must be closely monitored and modified where necessary, with new ones being introduced as market pressures change. All this is necessary to maintain the reputation of technical excellence for which ESA has become known. 

The key to success: ESA's initiatives will help to ensure the continuity of a qualified and motivated workforce

