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ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLÉAIRE
CERN EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Action to be taken		*Voting Procedure*
For recommendation to Council	**SCIENTIFIC POLICY COMMITTEE 269th Meeting 14 December 2010**	-
For Approval	**COUNCIL 157th Session 16 December 2010**	Simple Majority of Member States represented and voting

THE FELLOWS, ASSOCIATES AND STUDENTS PROGRAMMES

This document reviews the development of the CERN Fellows, Associates and Students programmes since 2005, when the previous review was presented to the Scientific Policy Committee, Finance Committee and Council (CERN/2652), and sets out the strategy for the coming five years.

The Scientific Policy Committee is invited to recommend and the Council is invited to approve the following strategy for the Fellows, Associates and Students programmes for the years 2011-2015:

- harmonisation of the Junior Fellow stipends with those offered by pre-Doctoral schemes in comparable organisations,
- consolidation of the prestige of the Senior Fellowship programme by increasing the differentiation between the Senior and Junior categories introduced in the 2005 Five-Yearly Review,
- increased investment in training elements of the FAS programmes,
- maintaining the subsistence rate levels for Associated Members of Personnel including Doctoral and Technical Students,

on the understanding that the full implementation details of the strategy, including the proposed amendments to the financial and social conditions as well as to the Staff Rules and Regulations, is submitted for the Council's approval in document CERN/FC/5497 – CERN/2946.

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1. The Fellows, Associates and Students programmes

A. Introduction

The first formal review of the Fellows, Associates and Students (FAS) programmes took place in June 1965 (CERN/598); the most recent review was in December 2005 (CERN/2652). This document reviews the period 2005-2009 and makes proposals for the future, including those resulting from the Five-Yearly Review (CERN/TREF/361).

CERN's FAS programmes are acknowledged to be a major asset for the scientific and technological communities. Building upon the four cornerstones of CERN’s mission - research, technology, collaboration and education - these programmes provide a direct contribution to carrying out CERN's mission in Europe and worldwide, whilst providing first class training opportunities in a high-tech, multicultural and multi-lingual environment.

The programmes are not only beneficial to the individuals but contribute significantly to the exchange of knowledge between the Laboratory and the Member States.

The success of the programmes is due on the one hand to CERN’s ability to attract the finest calibre applicants, and on the other to the strict criteria applied in the selection process, ensuring that decisions are taken on grounds of excellence. Here the role of the Selection Committees is vital, preserving through their action the aims and quality of the programmes.

The popularity of the programmes can be reliably measured through the total number of applications, which has seen a major surge during the last five years. The interest and prestige of these programmes may also be measured through the rise in external financial contributions, such as the European Commission’s Marie Curie COFUND contributions.

Every year, approximately 1,200 students, scientists and engineers, from undergraduates to senior scientists, participate in the FAS programmes, which create a very effective link between the Laboratory, its users, Member State industry and educational institutions. CERN’s HR-RPM (Recruitment, Programmes and Monitoring) group bears the overall administrative responsibility for the management of the programmes.

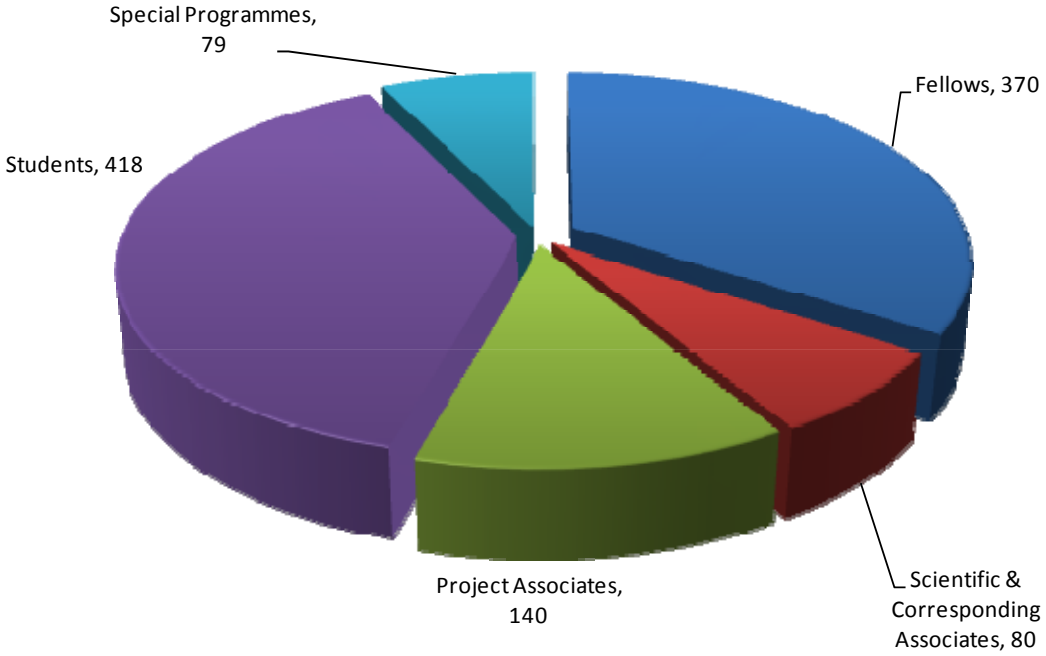


Figure 1 FAS programmes and participants in 2009

Figure 1 shows a summary breakdown of the main types of programme, including the number of participants in 2009.

B. Description of the programmes

The Fellowship programme is aimed at Member State scientists and applied physicists, seeking a position in research physics or applied sciences and the computing or engineering fields. Although the vast majority of Fellows come from the Member States, highly qualified applicants from non-Member States are also eligible. The programme offers recent graduates the opportunity to enhance their qualifications through participation in the work of the Organization. Fellows benefit from employment contracts with the Organization for a limited period, typically two years. This appointment, which often constitutes a first employment opportunity, is considered a great asset for pursuing a successful career in particle physics research, applied science or engineering.

In 2006, the programme was reorganised: age-based eligibility criteria were abolished and a professional experience criterion was introduced (maximum of 4 years for candidates with a Bachelor's diploma or up to 10 years post-MSc); furthermore, in order to facilitate the integration of junior researchers and engineers, the programme was subdivided into a Junior Fellowship programme, open to applicants at the Bachelor level and to those with up to four years of research experience post-MSc, and a Senior Fellowship programme for applicants with a PhD, or at least four years' experience post-MSc. Senior Fellow recruitment criteria are based on academic and research excellence.

Candidates for Research Fellowships are ranked by National Delegations while candidates for Applied Fellowships are ranked by a CERN panel of experts, according to the same criteria.

Applicants apply to the programme rather than to a specific post (unlike applicants for Staff positions). Fellows in theoretical or experimental particle physics have a free choice of the research topic they wish to follow, while applied science Fellows are assigned to a project determined in advance.

Fellowship applications are examined by the Associates and Fellows Committee (AFC), which includes representatives from all Departments and external members appointed a*d personam*. The Committee meets twice a year, in May and November and selects around 150 Fellows per year (currently in the ratio 30:70 for Research/Applied Fellows).

Fellows hold a full employment contract with the Organization including membership of the CERN Pension Fund. They receive a stipend, allowances and social security coverage through the CERN Health Insurance Scheme.

The Scientific Associates programme is aimed at senior physicists and engineers from Member States and non-Member States, wishing to spend a period of up to one year at CERN, typically for work connected with the research programme of their parent laboratories. It is an opportunity to participate in challenging research and development and to promote the exchange of knowledge in leading scientific and technological fields. Since 2003, all Associate applications have been assessed by the AFC. The programme is open to scientists and engineers on leave of absence from their Home Institute which, as their employer, remains responsible for the payment of all or part of their remuneration.

The payment scheme changed in 2006 as a result of the last Five-Yearly Review. The new scheme introduced a subsistence allowance comprising a basic payment to cover the high cost of living in the Geneva area increased by a seniority-based supplement, aiming to make the programme attractive for senior scientists.

Every year, a few eminent scientists are directly offered Scientific Associate appointments by the Director-General and thus receive the title of Guest Professor.

The Corresponding Associates programme is designed for scientists and engineers wishing to come to CERN for a short period, up to a maximum of six months. This programme is currently restricted to candidates from the smaller Member States (all but the four largest contributors) as a way to encourage their involvement in CERN activities. During their stay at CERN, Corresponding Associates are expected to receive

normal salary payments from their home institutes, while CERN adds a subsistence allowance to cover the additional cost of living in the Geneva area.

Student programmes are a key component of CERN's strategy to provide education and training to junior researchers and engineers. These programmes provide a link with the undergraduate population at universities and technical schools in the Member States to whom they offer training places as part of the curriculum. They also provide valuable human resources, contributing to the advancement of major research and development projects. Depending on their academic level and the programme chosen, students spend between 8 weeks and 3 years at CERN. Students are entitled to a subsistence allowance, at a rate depending on the specific programme.

I. **The Summer Student programme** is designed for undergraduates in physics and engineering, mainly from Member States, who come to CERN during the summer months for periods from 8 to 13 weeks. Approximately 75% of the students are placed in experimental activities within the Physics Department, the remaining 25% being placed in more technical activities in the Technical and Accelerator Departments. In addition to participating in the day-to-day work of a research or development group, summer students have the opportunity to attend a bespoke series of lectures on particle physics and related technologies as well as dedicated workshops and visits. Furthermore, students are encouraged to present the results of their work through poster and seminar sessions. The lecture programme is organised by the Summer Student Lecture Programme Committee.

II. **The Technical Student programme** is targeted at students from Member State universities or higher technical schools, who are required to spend a training period in industry or at a laboratory and produce a report as a mandatory part of their studies. Candidates are selected by the Technical Student Selection Committee (TSC). The programme is restricted to students having completed at least 18 months of full-time studies in a technical field. The duration of their stay at CERN is at least 4 months and runs up to a maximum of 14 months.

III. **The Doctoral Student programme** is intended for postgraduates wishing to perform their PhD work in a technical field (excluding theoretical and experimental particle physics), who have been studying in a CERN Member State for at least the past 5 years and are enrolled in a Member State university. Daily tutoring during the period at CERN is the responsibility of a CERN Staff Member, while the award of the PhD remains the responsibility of the university. Candidates are selected by the TSC. The duration of Doctoral Student appointments should not exceed three years.

IV. **The Administrative Student programme** offers a small number of positions to students in the fields of international management, finance, personnel administration and translation. It was created in parallel to the Technical Student programme and offers up to 20 placements/year for undergraduate students who have studied at least 18 months at university level or at an establishment for higher administrative education. The programme is intended for students who are required to complete a practical training period as part of their studies. The duration of stay is between 2 months and 12 months.

Project Associates are engineers, scientists and technicians who come to CERN on an individual basis or as members of a team. The Project Associate category was created in 1994. The objective was to second scientific, engineering and technical staff from institutes to CERN for a limited period and assign them to a specific project. Besides the educational value for the staff themselves, this category opened up the possibility for non-Member States to contribute to CERN projects with a view to extending and strengthening scientific collaboration. Project Associates are required to have an outside employer which must be a scientific institute (commercial firms do not qualify). Project Associates must remain employed by and receive a salary from their employing institute during their entire association with CERN and must be entitled to return to the employing institute upon termination of their association with CERN. The association with CERN is for an initial period of up to one year, renewable subject to agreement by the employing institute. The total period of association may not exceed three years. CERN's financial support consists of a flat-rate subsistence allowance.

Special programmes exist, in addition to the afore-mentioned well-established programmes. They are based on externally-funded collaboration agreements which enable an increasing number of additional scientists and students to come to CERN. A detailed list of such programmes is provided in Chapter 2.

The **Graduate Engineering Training** (GET) programme was introduced by the Management in December 2009 and is designed to encourage more candidates in the applied science and engineering fields to apply for CERN Fellowships. To ensure rapid implementation, the GET scheme was integrated into the existing Fellowship programme and procedures.

C. Previous Five-yearly Review

A summary of the main recommendations approved by the Council in 2005 follows:

- For the Fellowship programme

- Moving from an age-based to an experienced-based classification.
- Introduction of the Senior & Junior Fellowship components.
- Cost-savings: Fellows' take-home pay was maintained but costs were reduced through a cut in overheads.

- For the Scientific Associates programme
  - Moving from an age-based to an experience-based classification scheme.
  - Making the CERN payment scheme independent from the level of home support and reconsidering certain fringe benefits given that CERN is not the employer.
- For the Student programmes
  - Revision of the subsistence rates for Doctoral and Technical Student programmes.

D. Summary of Results in the Period 2005-2009

An outline of the main changes which occurred in the period under review is given in the following paragraphs:

- ***A major recruitment drive*** was initiated to increase the number of applicants to the FAS programmes. During several committees in 2006, a shortage of quality applicants was observed, particularly in the technology and engineering domains, and CERN's visibility in these fields was questioned. As a result, from 2007 a dynamic recruitment campaign was put into action including mailing of posters to some 400 Member State Universities, and Web 2.0 presence (Facebook pages for students and YouTube videos targeting undergraduates in engineering and technology). Combined with the subsequent media attention from the LHC start-up, the actions resulted in a significant increase in the number of applicants, as illustrated in Figure 2, overleaf.

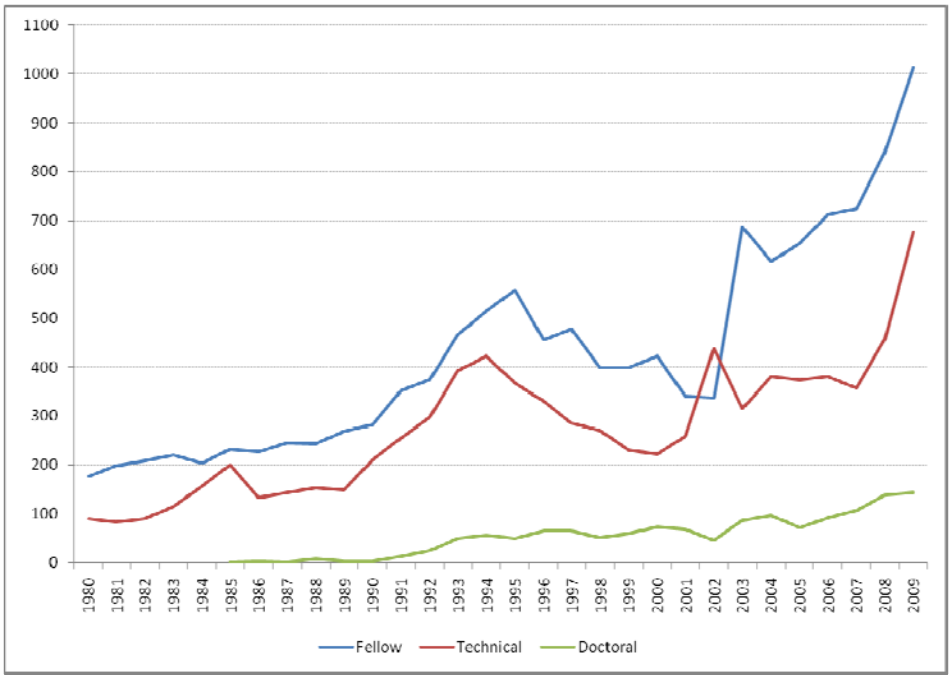


Figure 2 Evolution of Fellow and Student applicants since 1980

- For the ***Fellowship programme***, a number of changes were introduced.
    - To take advantage of the e-recruitment system's capabilities and deal with the increasing number of applicants, in 2008 the internal paper files for Fellowship ranking and selection were replaced by electronic folders and summary files. This system proved so successful that it was then subsequently offered to the external rankers and by 2009 ***paper was entirely eliminated from the selection process***.
    - One major change was introduced in 2007 with the management of 'person-month' quotas being replaced by a ***more flexible Swiss-Franc management scheme***. This increased flexibility and the possibility to allocate Fellowship funding more easily to project-oriented work or assignments with other funding sources.
    - Since the previous quota system had been used also to monitor supervisory capacity, a more methodical approach to evaluating supervisory quality was introduced and this was via the ***Fellowship exit questionnaire*** introduced in May 2008. This allowed HR Department and the AFC constantly to monitor and evaluate the supervision and project quality of the Fellowships. Results to date have been extremely positive with around 80% of Fellows considering the supervision good or very good in terms of both quantity and

quality. Furthermore, 99% of Fellows who replied would recommend a CERN Fellowship to others.

- Since the beginning of the Fellowship programme, fair access to language training has often been discussed at the AFC meetings. Departmental budgets and policies varied, resulting in differing treatment across the Fellowship community. To address this issue, a ***central fund for language training for Fellows*** was established in 2009 which guaranteed access to at least one language training course per Fellow.
- Finally in December 2009, CERN introduced the ***Graduate Engineering Training (GET) programme***. This programme is designed to encourage more candidates in the applied science and engineering fields to apply for CERN Fellowships, which are still regarded outside the Organization as very much physics-based. GET was integrated into the existing AFC selection procedure and is expected to provide excellent career development for engineers. Very positive feedback has been received from preliminary contacts with Member States regarding the introduction of this scheme.

- CERN's involvement in ***Marie Curie Actions*** under Framework Programme 6 (FP6) goes back to 2004. There are a wide range of Actions in which CERN is pleased to be involved and which are giving the new generation of researchers unique opportunities at the start of their careers. In 2009, the focus of Marie Curie Actions at CERN began shifting from FP6 to FP7. The highlight of the year was the completion of negotiation and the start of the COFUND grant which is worth 5 M€ over four years as of 1 April 2009. At the May and November Fellowship Committees, 40 highly-ranked applicants were awarded 3-year Fellowships. All 40 selected Fellows started their contracts by 1 April 2010. Further details of the Marie Curie Actions will be given later in this report.
- A number of improvements were also made to the Technical Student programme.
  - Following the successful move of the Fellowship programme to Swiss Franc management, the same approach was adopted for the ***Technical Student programme in 2009***. The departmental person-month quotas were replaced by financial allocations and Departments were also authorised to top up their budgets with funding from other sources. This flexibility resulted in an increase in appointments to the Technical Student programme.
  - In order to monitor quality and supervision capacity, **exit questionnaires** were also introduced into the Technical Student programme in January 2009. Results have been very positive. Around 90% of the respondents found the

studentship challenging, relevant, meeting their expectations and enabling them to learn new tasks and develop their skill set. 90% found the placements 'good to excellent', and 100% of the respondents believe that their placement at CERN will help them with their future career.

- To achieve economies of scale for the arrivals of students, a ***regular induction*** programme for new arrivals was introduced for the Technical Student programme.
- Finally, to allow further flexibility for some Member States where the work-placement semester was limited to four months, the ***minimum duration of the technical student placement was reduced*** from six to four months.

- The ***Administrative Student programme was revised*** in 2008 as it was no longer in line with Organization's needs. The limitations were especially due to certain missing disciplines, the number of placements and the contract conditions. Indeed in the last 10 years, CERN has become recognised as leading edge in a wide area of administrative practices such as e-business, logistics, technology transfer, earned-value management (EVM) and product-lifecycle management (PLM) etc. CERN was unable to offer placement in the end-user departments of such tools (e.g. FI, DSU, HR...) to students studying disciplines such as administration, project management or financial management. The changes implemented were: 1) to include engineering management as an accepted discipline, 2) to extend the potential duration of stay and 3) to increase the number of studentships available from 10 to 20. This brought the programme more into line with the Technical Student programme. As a result of this revision, the average stay of an Administrative Student increased from 2.3 months in 2005 to 6.2 months in 2009. Figure 3, overleaf, shows the evolution of the number of students and duration of stay.

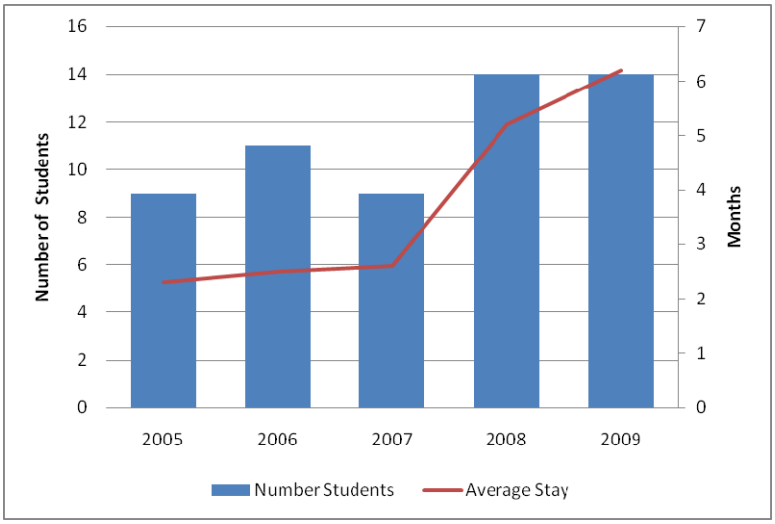


Figure 3 Number of Administrative Students and average duration

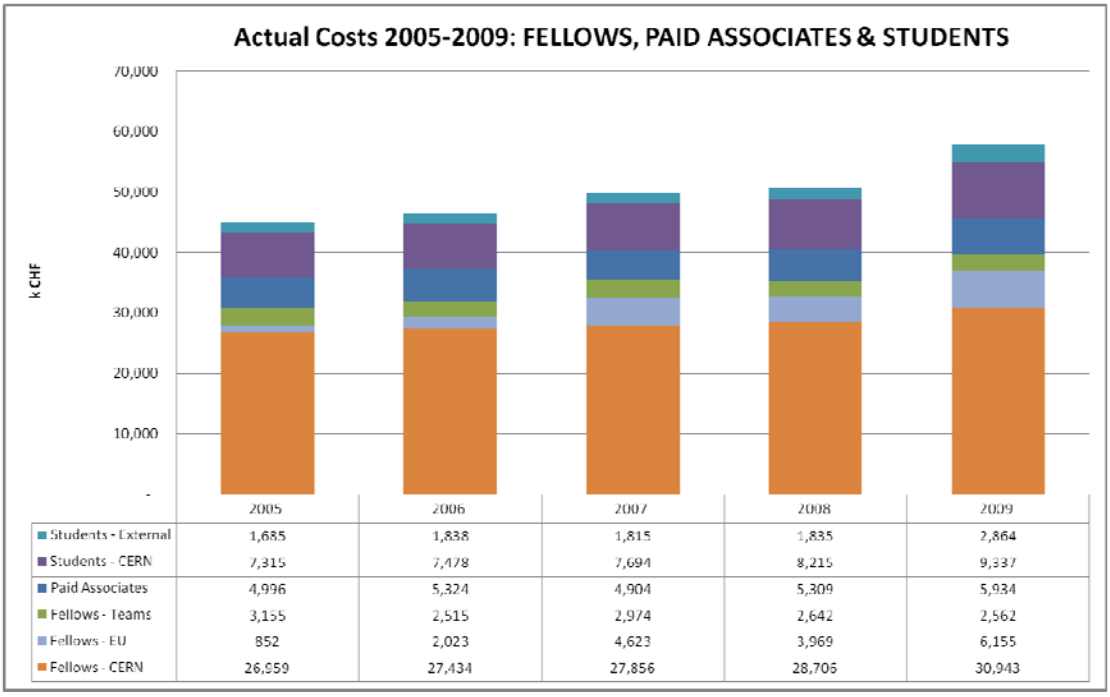
- With the imminent start-up of the LHC in sight, the ***guidelines for Project Associates were revised*** in 2008 and approved by the Directorate. The main aim of the revision was to eliminate inconsistencies and to align the family allowances to the Scientific Associate scheme. The gap period after a Project Associate contract of at least three years was reduced to two years or pro-rata for contracts of shorter duration. The maximum duration for Project Associates returned to three years since the exceptional extensions to five years were only during LHC construction. HR Department has been monitoring this closely to prevent misuse of this category of personnel.
- The Summer Student programme continued to go from strength to strength with a significant portion of the non-Member State (NMS) students organised by the PH Department being incorporated into the main programme run by the HR Department. One weak point of the process remained selection which, whilst being web-based, relied on the speed of the supervisor to select potential students. In 2010, a major ***change of the summer student selection software and process*** was introduced which allowed for selection based on preferences and ranking of students and projects. The results of this, presented to the Advisory Committee of CERN Users (ACCU) in September 2010, demonstrated an overwhelming preference for the new *modus operandi*.
- On the informatics tools a number of improvements were introduced :
    - Introduction of systematic reporting and monitoring of well-balanced/poorly-balanced Member States with direct follow-up and actions.
    - Abolition of paper files for ranking and selection committees, replaced by secure online document libraries.

- Summary reports were produced for Fellowship candidates. The Administrative Informatics Systems (AIS) tools were adapted to the new Swiss Franc approach to managing quotas.

- Concerning the Special programmes, a number of existing agreements were renewed and expanded and a number of new agreements were also concluded. In particular :
  - The Spanish agreement between CERN and the *Ministerio de Ciencia y Innovacion* (MICINN) was revised in 2010, allowing for an increase in trainees (up to 20).
  - The French *Volontaires Civils Internationaux* (VI) programme, after running for a number of years at 4, was renegotiated with the *Ministère des Affaires étrangères et européennes* (MAEE) and the possibility of going up to 24 was put into place. 24 VIs came to CERN in 2010.
  - A number of additional funding agreements were negotiated, including: Germany with Baden-Württemberg (2007 and amendment in 2009) financing up to 13 technical students/year for 3 months of stay, and Rheinland-Pfalz (2009) financing up to 7 technical students/year for 3 months of stay. Agreements were also established with Greece (NTUA and IKY in 2009), partially financing Technical, Doctoral Administrative Students and Fellows, and with Morocco (2009) fully financing students on various programmes.
  - The *Istituto Nazionale di Fisica Nucleare* (INFN) requested the establishment of a programme enabling its most qualified personnel to spend some time at CERN in the framework of the LHC activities. Therefore the 'Special INFN Associate programme in the Framework of the LHC' was approved in 2007 and the new agreement was signed. This was updated in 2009 to increase the number of Associates from 25 to 40 and change the normal duration of appointment from 6 to 12 months.

- Concerning maintaining a balanced representation from the Member States across the programmes, in addition to the regular monitoring as part of the HR key performance indicators (KPIs), HR actively participated in the CERN-Greece, CERN-Spain and CERN-Norway working groups chaired by the Director of Administration and Infrastructure. A number of recruitment campaigns were organised in these contexts as well as a recruitment drive to address the lack of candidates for FAS programmes from the UK.

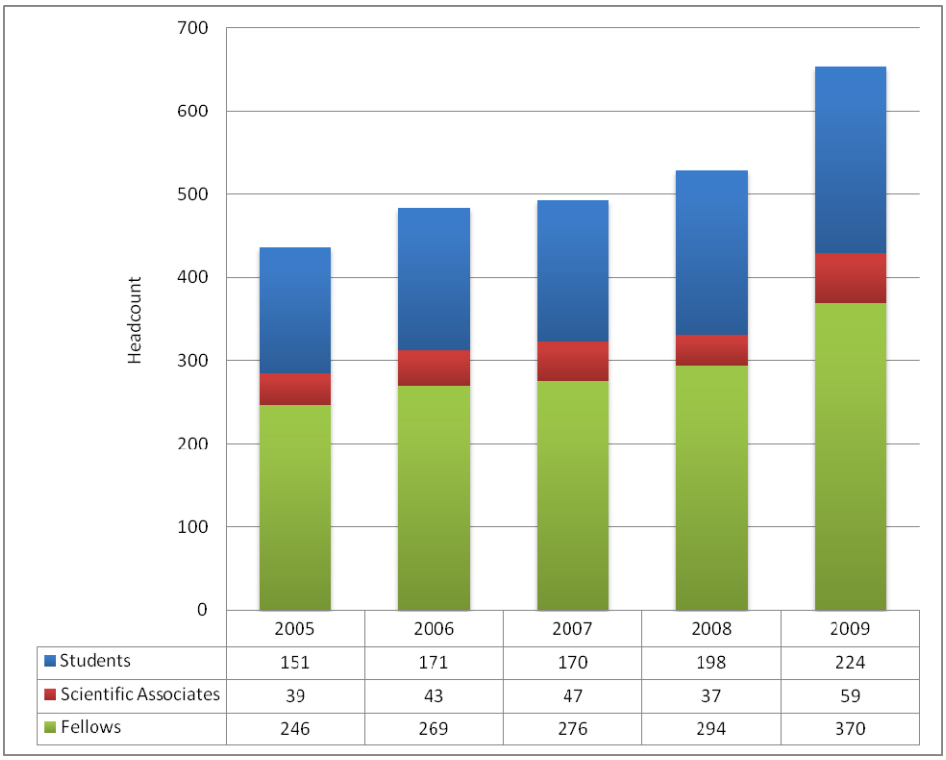
E. Summary of Financial Data



	2005	2006	2007	2008	2009
Students - External	1,685	1,838	1,815	1,835	2,864
Students - CERN	7,315	7,478	7,694	8,215	9,337
Paid Associates	4,996	5,324	4,904	5,309	5,934
Fellows - Teams	3,155	2,515	2,974	2,642	2,562
Fellows - EU	852	2,023	4,623	3,969	6,155
Fellows - CERN	26,959	27,434	27,856	28,706	30,943

Figure 4 Evolution of the FAS expenditure

Figure 4, above, shows the evolution of FAS expenditure at CERN including all funding sources, highlighting a significant continued investment in the programmes during the review period. Particularly noticeable increases are in the external financing of students and the EU contributions to the Fellowship programme.



	2005	2006	2007	2008	2009
Students	151	171	170	198	224
Scientific Associates	39	43	47	37	59
Fellows	246	269	276	294	370

Figure 5 Evolution of the strength of FAS programmes

Figure 5 shows the evolution of CERN-supported FAS participants expressed in headcount at 31 December each year. In this context, the students include all those present on that date (Technical, Doctoral & Administrative Students) but do not include the Summer Students which are reported separately later in this document.

The number of scientific associates is generally low, but is expected to rise with the physics data-taking activities of LHC; in 2009, there has already been an increase in such appointments.

The number of Fellows has increased significantly for many reasons, including cost-streamlining, increased flexibility with the new budget management approach, increased EU contributions (Marie Curie Actions and COFUND), and the additional increased funding for targeted activities such as physics data handling, CLIC and LHC operation and upgrades described in the White Paper Themes of CERN/FC/9997 (October 2006).

2. Evolution of the programmes: Procedures and Data

The following section provides detailed information and analysis concerning the evolution of the various programmes over different periods of time. Unless specified otherwise, the period under consideration coincides with the review period (2005-2009).

A. Procedures

In most of the programmes, dedicated selection committees, with representatives from all Departments as well as external institutions, play a central role in appointment decisions. They are essential for preserving the aims and quality of the programmes. The HR-RPM (Recruitment, Programmes & Monitoring) group is responsible for the overall management.

- The **Associates and Fellows Committee** (AFC) was created through a merger of two separate committees in May 2003. Dr. L. Camilleri was chair of the AFC until January 2007 when he was succeeded by Dr. R. Voss. The AFC meets twice a year (May and November). The Committee is guided in the selection of Fellows by a ranking for Senior Fellows, which reflects each candidate's competencies and long-term potential. Each Member State Fellowship Delegation provides the ranking for its own candidates in particle physics, whereas for candidates in applied science the ranking is made directly by a dedicated CERN panel. With the separation of the Junior & Senior Fellows programmes in 2006, Junior Fellows are no longer ranked and are selected on technical excellence. Marie Curie Fellows are selected separately under dedicated Marie Curie Selection Committees with the AFC being informed as necessary under the agenda point Matters Arising.
- Technical and Doctoral Students are selected by the **Technical Students Committee** (TSC, meeting three times a year). In the period under review, the TSC has operated under the chair of Dr. E. Heijne (2004-2009) and subsequently Dr. S. Russenschuck who took over in November 2009. In addition to the TSC which primarily focussed on selection, a new TSC Policy Committee was introduced in 2009 to discuss and decide upon policy matters. All three CERN Directors were present at the first meeting of the Policy Committee on 12th November 2009.
- **Summer Students** are selected through a two-step procedure: a pre-selection phase which identifies the best candidates for each of the Member States, followed by a final selection performed by the groups hosting the students.

CERN professional staff as well as scientists and engineers from the User's community are responsible for tutoring.

- The **Summer Student Lecture Programme Committee** (SSLP) is chaired by an experimental physicist from a collaborating Member State institute, who normally spends a fraction of her/his time at CERN. During the review period, the Committee was chaired by Dr. Fabio Cerrutti from INFN Frascati between 2005 and 2007 and then Dr. James Wells from CERN as of 2009.

B. Fellowship programme

Figure 6 shows the evolution of the number of candidates and appointments (including externally-funded) on a Fellowship position in the period from 1990 to 2009.

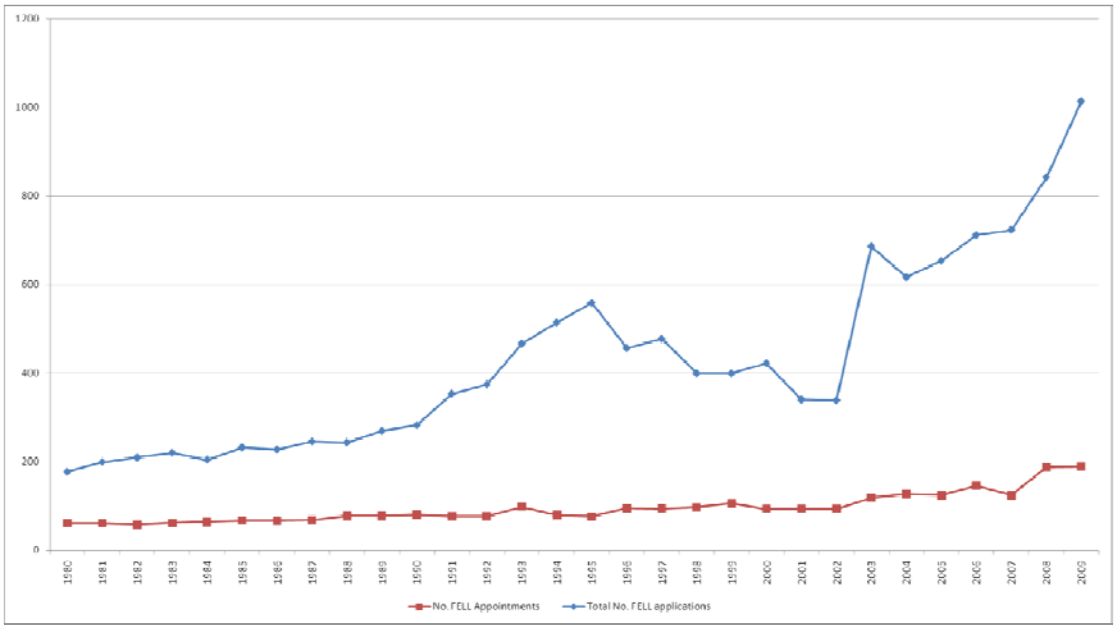


Figure 6 Evolution of Fellow candidates and appointments: 1980 – 2009.

The 2003 peak can be explained by the fact that three selection meetings (instead of two) took place that year due to the merging of the Fellows and Associates Committees. The subsequent increase from 2007 is due to a combination of the dynamic recruitment and outreach campaign initiated by HR targeting engineers as well as physicists, and CERN's increased attractiveness for Fellowship positions following the start-up of LHC.

The success rate of Fellowship applicants for each country of origin is shown in Table 1.

	Applied	Selected	Success Rate
AT	59	25	42.37%
BE	43	8	18.60%
BG	66	5	7.58%
CH	90	21	23.33%
CZ	60	9	15.00%
DE	319	87	27.27%
DK	26	8	30.77%
ES	462	75	16.23%
FI	59	8	13.56%
FR	392	84	21.43%
GB	182	46	25.27%
GR	125	20	16.00%
HU	57	11	19.30%
IT	730	156	21.37%
NL	48	12	25.00%
NO	53	15	28.30%
PL	262	56	21.37%
PT	181	32	17.68%
SE	66	12	18.18%
SK	32	5	15.63%
NMS	1563	96	6.14%
TOTAL	**4875**	**791**	**16.23%**

Table 1 Success rate of Fellowship applicants by country of origin

As mentioned previously, the major innovation in the management of the Fellowship programme which led to further budget flexibility was the introduction of a Swiss Franc management of the Fellowship budget. During the 1990s, there was a single central budget code with a single funding source and single budget allocation (known as the ‘DGP’ budget). Departments were allocated person-month quotas, but close financial follow-up was also carried out (by HR) to ensure compliance with the corresponding Swiss Francs budget.

During the 1990s, the budget was decentralized and given to the Departments, but the management and distribution of the Fellowship quota remained centralised in HR, which provided the person-month quotas and made them visible via online reporting.

Externally, the Fellowship budget was communicated in the Medium Term Plan and the draft budget in Swiss Francs, but internally the quotas remained in person-months.

This dichotomy of managing quotas in fixed FTE, yet having a variable cost-impact in Swiss Francs, is reminiscent of the previous method of managing staff expenditure via the staff complements published by HR. This was the impetus for introducing a uniform P+M (Personnel + Material) managed approach to personnel expenditure in the 2000s. On 8 November 2007 the CFO issued a memo, agreed by the DG, introducing a standard-cost approach to managing the Fellows & Associates budget. As with the P+M approach for managing staff, this has a number of advantages:

- Same language used externally and internally.
- Possibility of carry forward, transfer of Materials to Personnel and project-funded Fellows.
- Possibility to use staff Personnel budget for Fellows (but not the reverse).
- Transparency and traceability.

This flexibility, combined with increased external funding, cost-savings introduced in the previous Five-yearly Review and subsequently the introduction of the GET category, made it possible to increase the number of appointments, as shown in the Fellowship evolution in Figure 7, below.

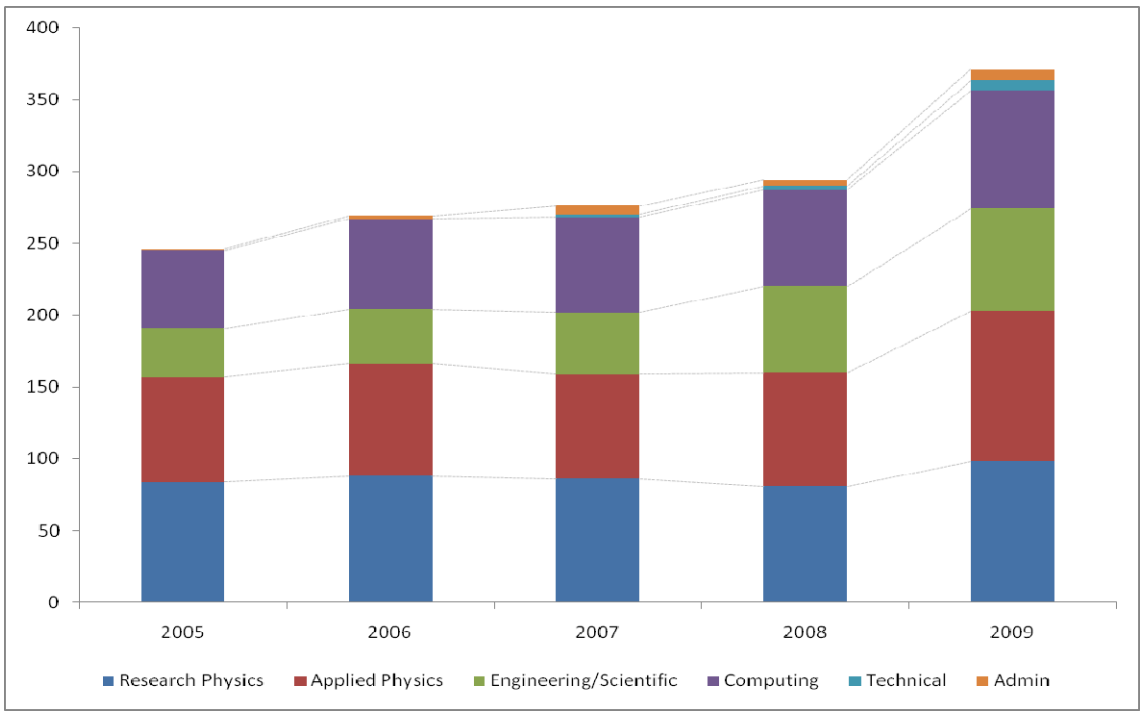


Figure 7 Evolution of the various disciplines in the Fellowship programme

During the construction phase of the LHC the number of appointments in research physics decreased, but as illustrated in Figure 7, and as anticipated, the number of appointments of research physicists for LHC experiments operation and data analysis is now on the rise

again. There was also a noticeable increase in engineering Fellows already in the period 2006-2008, which acted as the spur for the introduction of the GET programme in 2009.

Table 2 provides a detailed breakdown of the evolution of Fellowship appointments by discipline across the review period in absolute numbers and percentages.

		2005	2006	2007	2008	2009
Admin	Number	1	2	6	4	8
	Percent	0.4%	0.7%	2.2%	1.4%	2.2%
Applied Physics	Number	73	78	73	79	105
	Percent	29.7%	29.0%	26.4%	26.9%	28.3%
Computing	Number	54	63	66	67	82
	Percent	22.0%	23.4%	23.9%	22.8%	22.1%
Engineering/Scientific	Number	34	38	43	60	71
	Percent	13.8%	14.1%	15.6%	20.4%	19.1%
Experimental Physics	Number	50	57	46	49	60
	Percent	20.3%	21.2%	16.7%	16.7%	16.2%
Technical	Number			2	3	7
	Percent	0.0%	0.0%	0.7%	1.0%	1.9%
Theoretical Physics	Number	34	31	40	32	38
	Percent	13.8%	11.5%	14.5%	10.9%	10.2%

Table 2 Evolution of Fellowship disciplines

Figure 8, overleaf, shows the evolution of the Junior and Senior sub-programmes. It illustrates the phasing out of the ‘old’ Fellowship contracts and their replacement by the new sub-programmes.

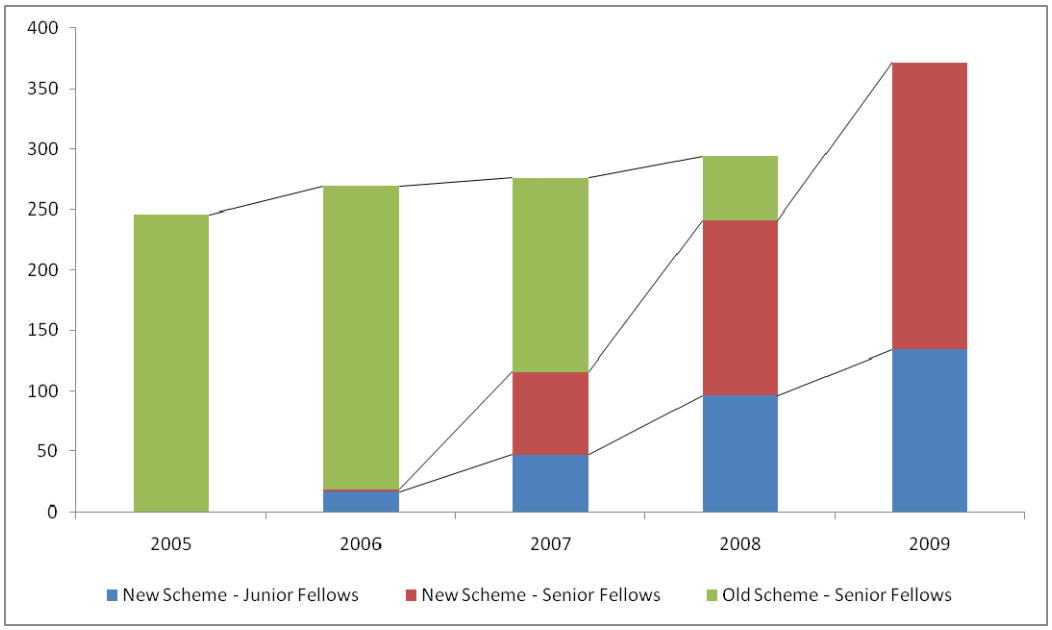


Figure 8 Evolution of the Senior / Junior Fellowship sub-programmes

Regarding the evolution of non-Member State (NMS) Fellows during the reference period, it is worth noting that appointments under Marie Curie Actions (including COFUND) are not restricted to Member-State nationals. Figure 9, below, shows the evolution of NMS Fellow appointments. Document CERN/598 of June 1965 places a ceiling for NMS appointments at 1% of the CERN personnel budget. Even with 10% of Fellows from NMS that ceiling is still respected due to tighter restrictions applied elsewhere (particularly on Staff Member appointments).

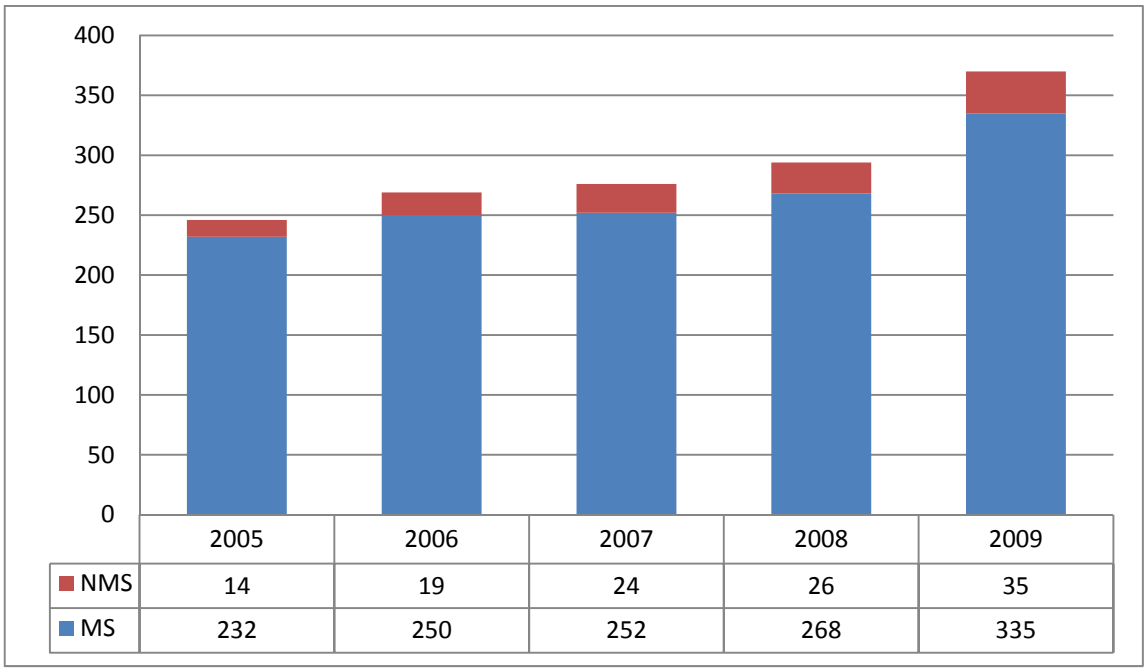


Figure 9 Member vs. non-Member State Fellowships

C. Scientific Associates programme

Figure 10, below, shows the evolution of Paid Scientific Associates since 1990 and that of the Project Associate, a new category introduced in 1996 for the construction of the LHC. The numbers of Project Associates are clearly seen to rise during LHC construction and decline following commissioning. The dip in the Scientific Associates programme at the start of the review period is partly explained by a shift in priorities from Associates to Fellows in preparation of the LHC activities and also by the completion of the LEP physics analysis at that time.

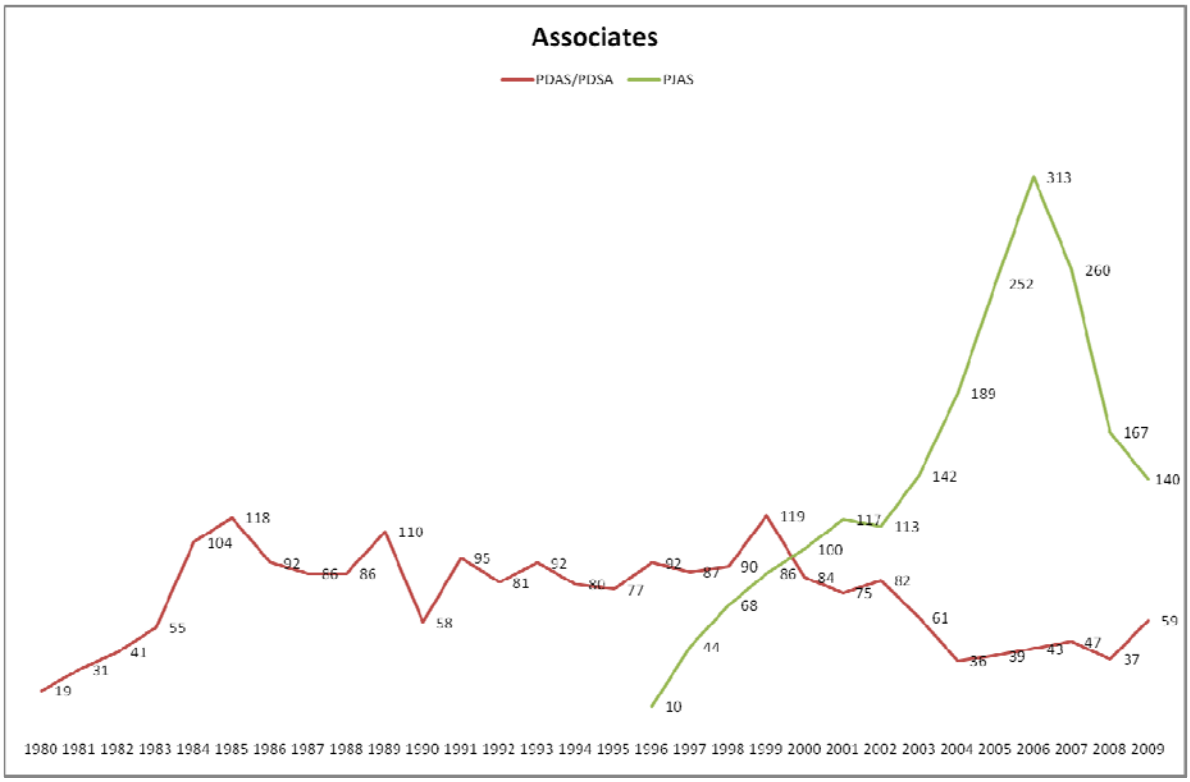


Figure 10 Evolution of Scientific and Project Associates between 1980 and 2009

As CERN moves towards becoming a more global laboratory, the absolute numbers of NMS scientists participating in the CERN programme is starting to rise, but their number remains fairly stable in percentage terms across the review period, as can be seen in Figure 11, overleaf.

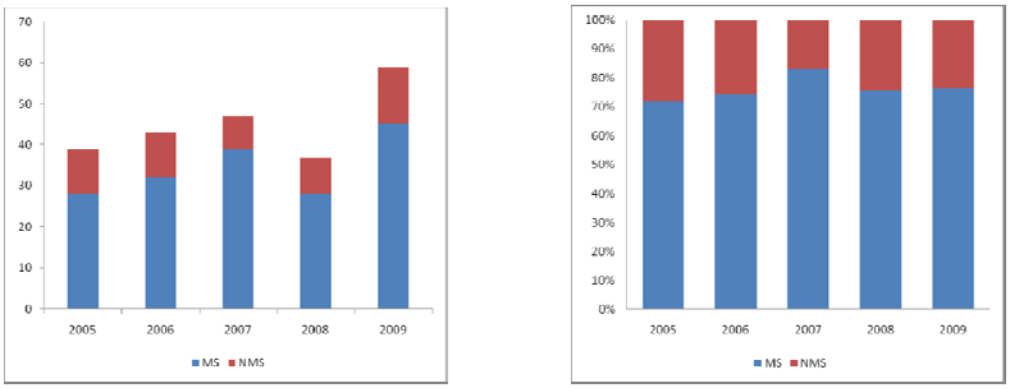


Figure 11 Strength of the Scientific Associate programme: Member vs. non-Member States, absolute & percentage-wise

D. Corresponding Associates programme

The number of Corresponding Associate appointments increased from 2007 to 2009 as Departments made full use of this opportunity to offer short-term stays at CERN in the context of the LHC start-up. A small number Associates requested their contract to be split so that they could be at CERN before the LHC started and after to collect data.

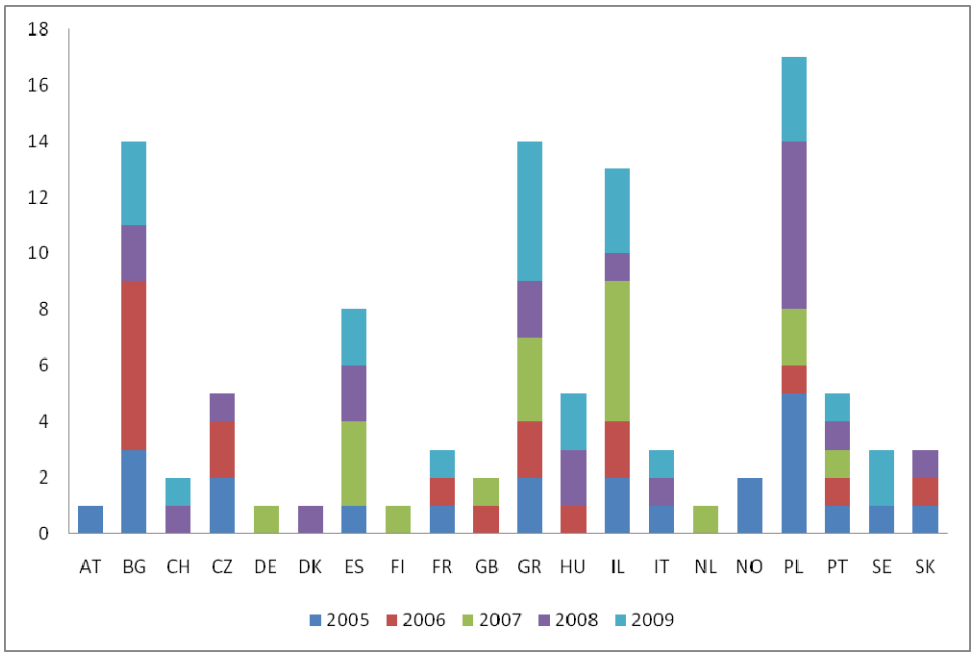


Figure 12 Nationality Distribution of Corresponding Associates programme

Figure 12 shows the nationality distribution of Corresponding Associates and the focus of this programme on the smaller Member States.

E. Student programmes

a. Doctoral Student programme

Figure 13 shows the number of candidates and appointments per year under the Doctoral Student programme as well as the number of students present.

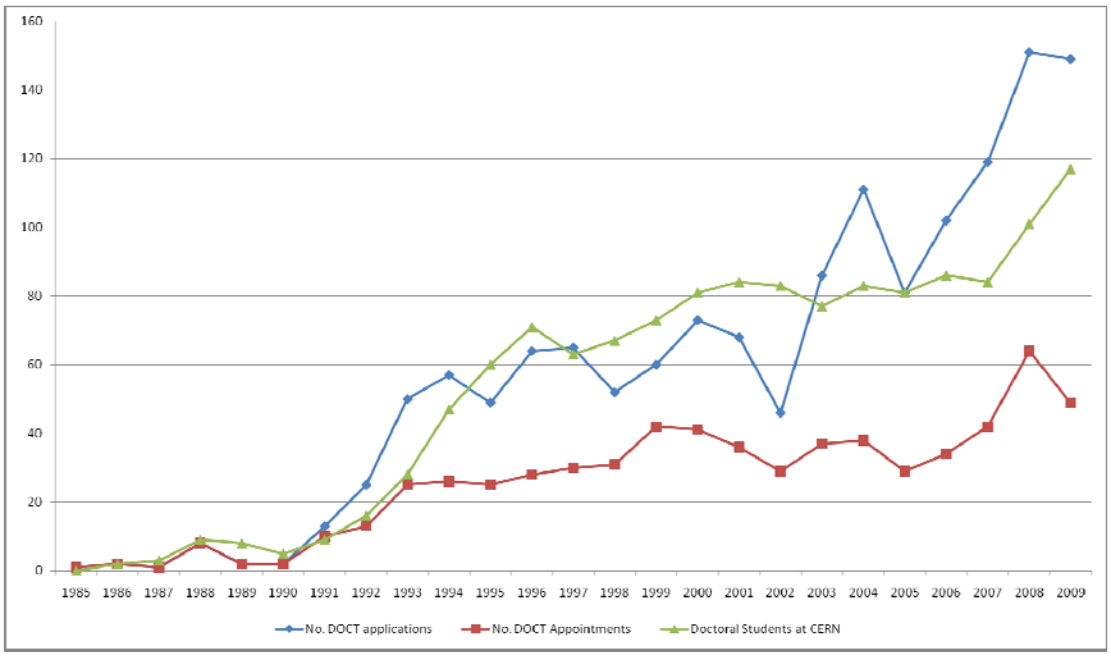


Figure 13 Evolution of Doctoral Student candidates and appointments: 1985 – 2009.

2008 saw a sharp rise in Doctoral Student contracts over 2007, mainly due to external funding, which caused a peak in appointments after the signing of an agreement with Germany funding the entire stay of up to 20 students from German universities. Under a similar agreement, Austria also funds up to 10 students for 30 months. Figure 14, overleaf, illustrates the contribution of external funds to the Doctoral Student programme, particularly from Austria and Germany.

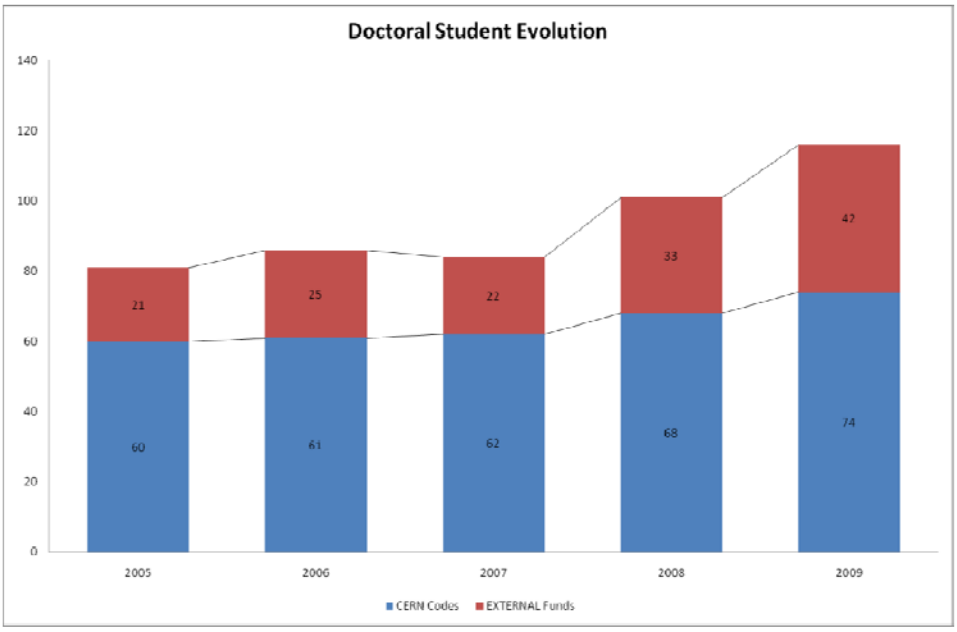


Figure 14 Doctoral Students - strength of the programme: CERN vs. external funding.

At the end of 2009 a decision was taken by the Directorate to simplify the budget accounting and replace the increasingly complicated departmental quotas with a Swiss Franc management approach allowing increased flexibility in the programme.

b. Technical Student programme

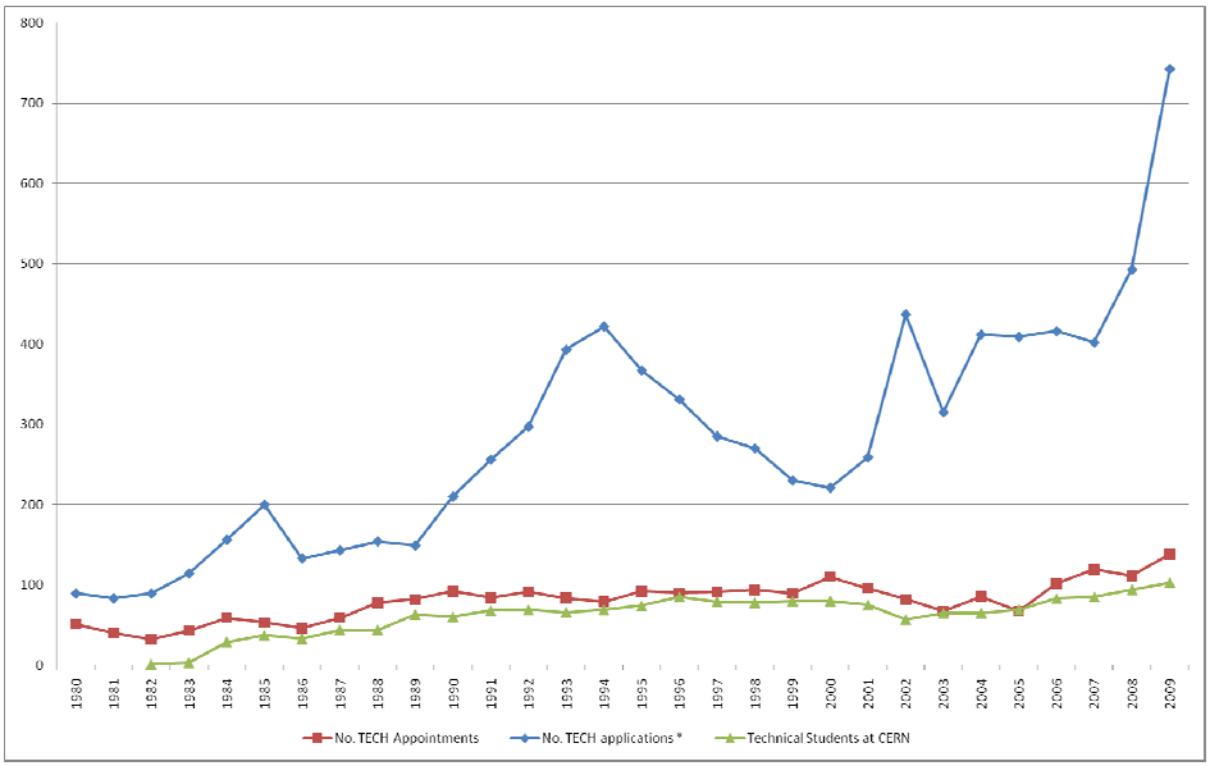


Figure 15 Evolution of Technical Student candidates and appointments: 1980-2009.

Figure 15 shows the trend in the number of candidates and appointments to the Technical Student programme and the number of technical students present at CERN. It clearly illustrates the impact of outreach actions taken in the early 1990s after the start-up of LEP in 1989 and a subsequent decline prior to the introduction of a web-based process in 2003. There was a further worrying decline in the ratio of applicants to selections in 2005 and 2006, leading to a lack of quality candidates. For this reason, a major recruitment drive from 2007 onwards specifically targeted the student community, notably using Web 2.0 technology (Facebook and YouTube presence) in addition to traditional poster printing and e-mailing of 400 universities across the Member States. The results can be seen in the sharp rise in applications since 2007.

As well as receiving more applicants, CERN increased its capacity to admit students onto this programme, thanks partly to the conversion to Swiss Franc Management and the abolition of quotas and partly to increased external funding. These two effects can be seen in Figure 16.

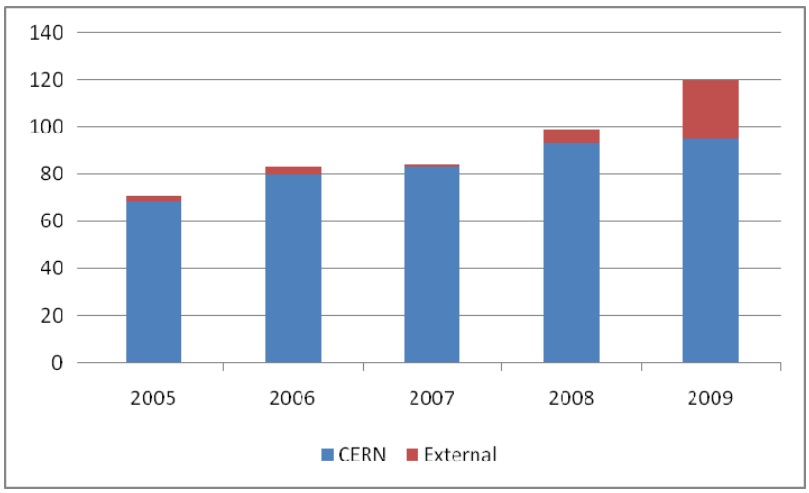


Figure 16 Evolution of Technical Student Population and funding source at CERN: 2005-2009

In particular, during the review period, the following agreements for external funding were signed: Baden-Württemberg (2007 and amendment 2009) financing up to 13 technical students/year for 3 months of stay, Rheinland-Pfalz (2009) financing up to 7 technical students/year for 3 months of stay. Furthermore Norway is continuing to partially finance technical students further to an agreement concluded in 2003.

The success rate of Technical and Doctoral Student applicants for each country of origin is shown in Table 3, overleaf.

	Technical Students			Doctoral Students		
	Applied	**Selected**	**Success Rate**	**Applied**	**Selected**	**Success Rate**
AT	50	22	44.00%	60	41	68.33%
BE	25	6	24.00%	4	3	75.00%
BG	31	12	38.71%	25	1	4.00%
CH	23	3	13.04%	7	3	42.86%
CZ	16	4	25.00%	15	5	33.33%
DE	290	71	24.48%	83	44	53.01%
DK	11	3	27.27%	2		
ES	407	74	18.18%	51	8	15.69%
FI	158	14	8.86%	15	4	26.67%
FR	363	46	12.67%	68	20	29.41%
GB	198	15	7.58%	13	6	46.15%
GR	114	28	24.56%	17	6	35.29%
HU	45	10	22.22%	18	2	11.11%
IT	235	49	20.85%	111	38	34.23%
NL	51	6	11.76%	6	3	50.00%
NO	146	58	39.73%	9	5	55.56%
PL	217	71	32.72%	50	8	16.00%
PT	54	15	27.78%	25	6	24.00%
SE	67	24	35.82%	12	7	58.33%
SK	12	5	41.67%	3		
NMS	166	5	3.01%	59	8	13.56%
TOTAL	2679	541	20.19%	653	218	33.38%

Table 3 Success rate of Technical and Doctoral Student applicants per country of origin

With the increased number of students at CERN, increased monitoring of supervision capacity and quality became essential and that was why an Exit Questionnaire was introduced in 2008.

Similarly, for dealing with larger numbers of arrivals and improving integration, the induction for Technical Students was re-organised. Instead of being on a one-on-one basis, a monthly induction was organised in which the students receive practical information related to their stay, meet the student coordinator and also have the opportunity to meet other students. To promote networking and integration, a student Facebook group was set up by HR and this has assisted students, e.g. in finding accommodation.

c. Summer Student programme

Figure 17 shows the evolution in the number of Summer Students across the review period.

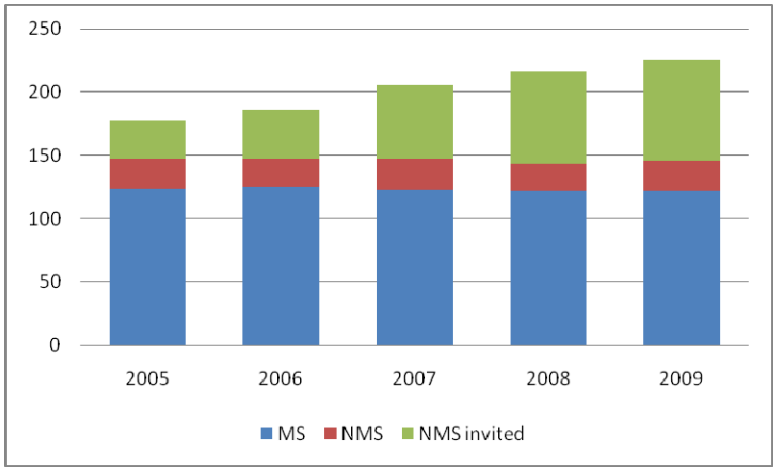


Figure 17 Evolution of Summer Students 2005-2009

The overall increase in student numbers is due to the progressive integration of the non-Member State students into the main Summer Student programme. A large percentage of the non-Member State students are also externally financed.

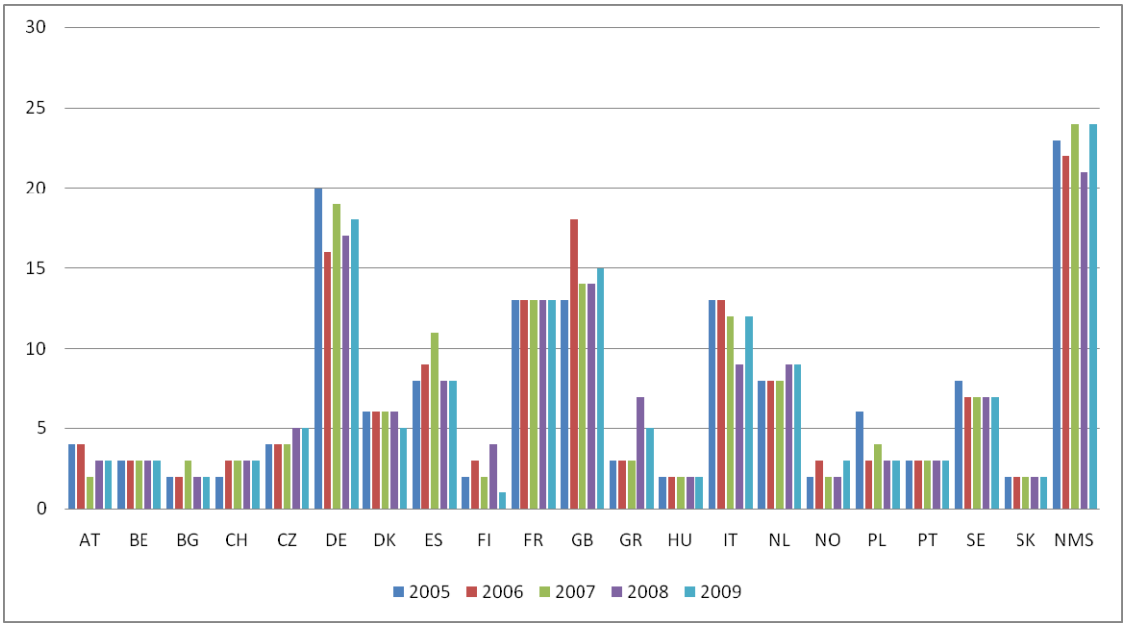


Figure 18 Nationality of Summer Students 2005-2009

Figure 18 illustrates the nationality distribution of selected Summer Students across the review period. Nationality quotas exist based on a Member State's contribution. However, small variations may exist in cases where a refused offer is replaced by the next available student suitable for the selected project (who may not be of the same nationality) or where external financing is involved.

Clear evidence for the success of this programme is provided by the analysis of the questionnaires completed by both students and supervisors at the end of the stay. Students are asked to comment on the overall organization of the programme, quality of the projects and supervision, as well as on the quality of the lectures. Feedback on the lectures, which often includes specific suggestions, is made available to all speakers. A high response rate has always been observed in the period under review, providing useful suggestions which have been promptly implemented in order to improve the programme. In 2009, for example, 96% of supervisors said they would recommend their student if he/she was to apply for a technical/doctoral or Fellowship position.

d. Other programmes

Additional, informal programmes involving students exist at CERN. Students participating in such initiatives are referred to as *Stagiaires* or *Short Term Students*. They come to CERN for non-remunerated, short-term, practical training assignments. Typically they are recruited from local schools and universities through contacts between CERN supervisors and local educational establishments, although these programmes are open to nationals of all Member States. Stagiaires can join CERN at any point during their studies. The period spent at CERN is part of the student's school/university curriculum, the maximum length of stay being five months. In particular, to enable schoolchildren from the local area to discover CERN, the Director General decided in 2000 to accept students aged between 15 and 18, undertaking a non-remunerated traineeship. In this case, the maximum duration of stay is two weeks.

Cat.	Y 2005	Y 2006	Y 2007	Y 2008	Y 2009
Schoolchildren	36	51	55	84	130
Stagiaires	151	129	104	103	140
Total	187	180	159	187	270

Table 4 Evolution of school children and stagiaires in the period 2005-2009

As can be seen from Table 4, the combined number of *stagiaires* and school children has been steadily increasing over the last 3 years. Up until 2007, HR had a purely administrative role in the programme, but since 2008 has adopted a more active role in trying to place students who apply directly to CERN. Due to the questionnaire launched CERN wide at the beginning of the 2009, HR now has a database of supervisors willing to host Stagiaires or school children. These supervisors have been contacted throughout the year once requests have been received from potential Stagiaires. In 2009, for example, HR Department organised placements for 36 schoolchildren and *stagiaires* who had no prior contacts with CERN.

The growth of these programmes is also proof of a high level of interest and mutual satisfaction of supervisors and students. Through this programme, CERN provides a service to universities and schools and contributes to the education and training of young people.

F. Project Associates

Figure 19 shows the rapid growth of this programme which started in 1996 over the years of LHC construction, followed by a decline related to the change in activities as CERN moved from construction to commissioning and operation. It should also be noted that this is the programme with the highest rate of participation of NMS nationals.

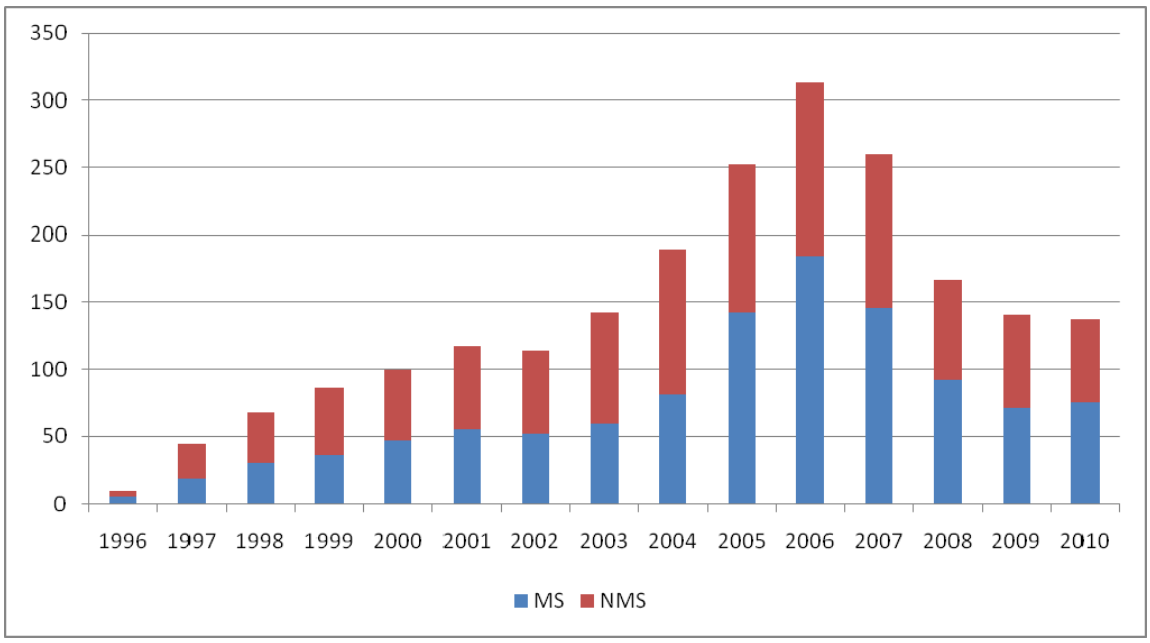


Figure 19 Evolution of Project Associates: 1996 – 2004.

G. Appointments on External Funds

Promoted jointly by Member State delegations and CERN Management, a number of special programmes based on external funds have been negotiated.

a. European Union

The European Union continues to be a very significant source of external funds through the Framework Programmes (FP).

1. Marie Curie Actions

Under FP1 to FP5, approximately 50 researchers came to CERN through Individual Marie Curie Fellowships.

Under FP6 (2003-2007), CERN continued to support and host individual Marie Curie Fellows (Intra-European Fellows - IEF) as well as Early Stage Training (EST) projects and Research Training Networks (RTN), taking advantage of the enhanced opportunities that FP6 provided in this direction. One major change since the last Five-Yearly Review was to start awarding Fellowship contracts to researchers recruited for at least 12 months – this was done to improve compliance with the Commission's requirement to give full employment contracts. Along with €/CHF exchange rate variations, this meant a minor overspend in CHF with respect to the euro amount received from Brussels – CERN has decided to absorb this overspend in order to benefit from having the additional Fellows which would otherwise not be possible via the regular Fellowship programme; these projects can also be viewed as a source of new blood for the future of particle physics. In terms of challenges, we are still well below the recommended 40% of female researchers – we are running at about 20% which reflects the applicant gender ratio; this has been discussed with the European Commission and it is accepted that 20% in the physical sciences and engineering is acceptable.

CERN was host to:

- eight IEFs for a total of 16 FTEs and 1.4 M€;
- six EST projects for 81 post-MSc researchers (145 FTEs) and 9.33 M€;
- one RTN coordinated by CERN and two in which CERN was a partner for a total of 16 researchers (7.6 FTEs).

With the launch of FP7 in 2007 (scheduled to run until 2013), CERN took advantage of the new programmes to apply for more projects to obtain additional funding for unparalleled training for additional Fellow years.

- The Initial Training Networks (ITN) take the concept of the old FP6 RTN a stage further with mobility across the network being of the utmost importance – out of three Calls for proposals so far, CERN has been successful in two and has beaten the average success rate in the last Call with 3 out of 10 successful proposals (cf. overall 17% success rate).
- Individual Fellowships now come as Intra-European (IEF) and International Incoming (IIF) Fellowships.
- Swaps between academia and industry are the mainstay of the Industry-Academia Partnerships and Pathways (IAPP).
- COFUND gives CERN funding to allow a selected number of the highest-ranked Fellows to have a third year of Fellowship. All or part of this third year can be spent at an institute outside CERN or in industry, on the condition that the Fellow continues working on the same project started at CERN.

Table 5 summarises CERN's FP7 successes so far with respect to Marie Curie Actions.

Project	**Fellow Years recruited by CERN**	**Contribution to CERN M€**	**Total Contribution to Project managed by CERN M€**
ITN **ACEOLE** : Data Acquisition, Electronics, and Optoelectronics for LHC Experiments	40.92	3.469	3.469
ITN **MC-PAD** : Marie Curie Training Network on Particle Detectors	11	1.070	4.670
ITN **PARTNER** : Particle Training Network for European Radiotherapy	12	1.110	5.601
ITN **CLOUD** : CLOUD Initial Training Network (partner with coordinator Frankfurt)	2	0.297	0.297
ITN **DITANET** : novel DIagnostic Techniques for future particle Accelerators: A Marie Curie Initial Training NETwork (partner with coordinator Liverpool)	9	0.690	0.690
ITN **UNILHC** : Unification in the LHC era (partner with coordinator Palaiseau)	3.5	0.460	0.460
Individual Fellowships : 4 **IEF** + 2 **IIF**	12	1.04	1.04
IAPP **MeChanICs** : Marie Curie linking Industry to CERN (partner with coordinator Helsinki)	2	0.597	0.597

COFUND	40	4.99	4.99
Recruitment / maximum total funding for CERN	134.42	13.723	21.814

Table 5 Funds for Marie Curie Actions

Figure 20 shows the combined effect of the Marie Curie funding on the number of Fellows at CERN based upon actual recruitment on 1 November 2010. We already know that future ITN projects that will recruit in 2011 will take the number of FTEs above 50, beating the previous peak in 2007.

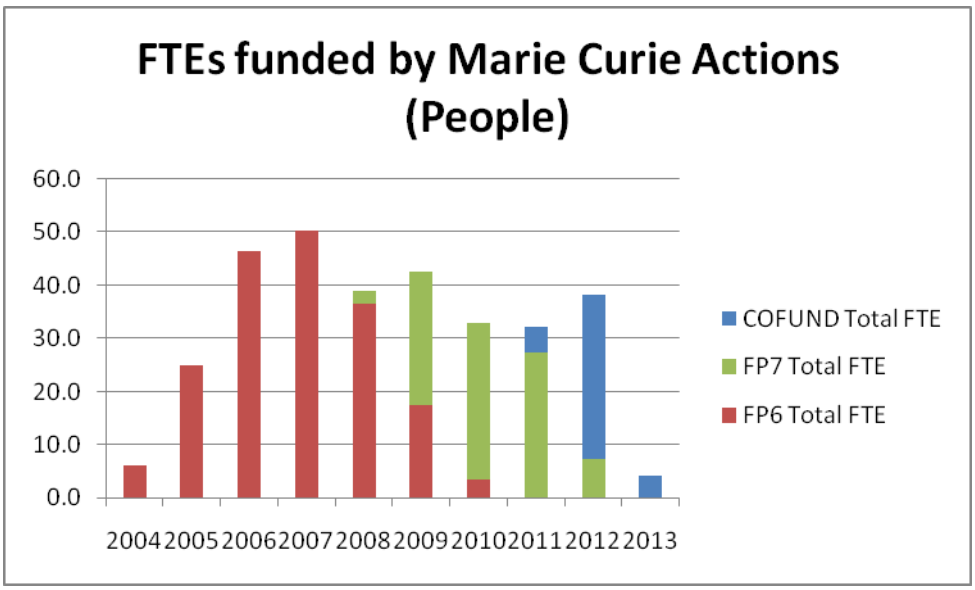


Figure 20 Impact of Marie Curie funding

2. Other EU- funded initiatives

During the period 2005-2009, the equivalent of 93.9 Fellow-years were funded by the European Commission in addition to the Marie Curie Fellows.

EGEE (Enabling Grids For E-Science) projects (phase 1 to 3): 23.9 FTE

EGEE is an Infrastructure Initiative that ran though the 6th and 7th EC Framework Programme aiming at integrating national, regional and thematic computing and data Grids to create a European Grid-empowered infrastructure for the support of the European Research Area.

EUROTEV (European Design Study Towards a Global TeV Linear Collider): 14.7 FTE

EUROTEV was a three-year FP6 Design Study to contribute to the critical R&D for the proposed International Linear electron-positron Collider (ILC).

SLHC-PP (Preparatory Phase Of The Large Hadron Collider Upgrade): 8.1 FTE

SLHC-PP is an FP7 Infrastructure project co-funded by the European Commission, that includes the coordination, support and technical activities for the LHC upgrade.

EURISOL (European Isotope Separation On-Line Radioactive Ion Beam Facility): 4.8 FTE

EURISOL was an FP6 design study aiming at producing detailed engineering-oriented studies and technical prototyping work for the next-generation ISOL Radioactive Ion Beam (RIB) facility in Europe.

CARE (Coordinated Accelerator Research in Europe): 4.5 FTE

CARE was an FP6 integrated infrastructure initiative project, of which the main objective was to generate a structured and integrated European area in the field of accelerator research and related R&D.

ISSEG (Integrated Site Security for Grids) : 4.3 FTE

ISSeG was an FP6 Specific Support Action which aimed to contribute to the consolidation of the European Grid infrastructure in the field of computer security, by creating and disseminating practical expertise on the deployment of Integrated Site Security (ISS), as a complementary action to EGEE Grid Security.

Health-e-Child: 4.1 FTE

An FP6 Integrated project that aims at developing an integrated healthcare platform for European Paediatrics.

Other: 29.5 FTE

The equivalent of 29.5 FTE have been funded, spread over 23 other projects throughout various departments of the Organization.

The equivalent of 53.9 FTE have already been granted for the period 2010-2013, and future projects should mean that at least an average of 25 FTE / year will be funded by EU money.

<u>b. Other Funding Sources</u>

In addition to the EU funded initiatives, a number of externally-funded initiatives exist.

- **Austria**

The Austrian Doctoral Student programme, fully funded by the Austrian Government, was set up in 1993 and continues to be an extremely successful model for the participation of a Member State in CERN programmes. So far 150 students have participated in this scheme. Approximately 25 Austrian Doctoral Students are present at CERN at any given time.

- **France**

In 2002, the *Ministère des Affaires Etrangères Européennes* (MAEE) signed an Agreement to establish a programme which is now integrated into the framework of the Trainee programme ("*Volontaires Civils Internationaux*"). This has replaced the old *Coopérants* programme which allowed French citizens to work at CERN during their military service. The aim of the Trainee programme is to enable young people specializing in engineering and technology to gain initial practical experience in CERN's high-tech activities, for periods from one to two years. Between 2005 and the end of 2009, 11 *Volontaires Internationaux* were supported by the MAEE to work at CERN. Given the success of the programme, the Agreement was revised in 2010 to allow an increased number of *Volontaires Internationaux*. The MAEE funds 4 *Volontaires* per year and approximately 20 are funded by the CERN Departments.

- **Germany**

In 2007 a new Agreement with Germany was signed between CERN and the Federal Ministry for Education and Research. It provides for the complete financing of up to 20 doctoral students from German universities. The students are completely integrated into the official Doctoral Student programme. So far 35 students have participated in this scheme and the first 3 are in the process of finishing their PhD.

- **Israel**

Typically 2 to 3 Fellows and Corresponding Associates are paid annually, irrespective of nationality, using Israeli funds. Moreover, between 2005 and 2009, 14 people were appointed under a programme for hiring Technical and Industrial Associates for ATLAS and CMS, launched in 2001. Since 2002, Israel has also funded 3 to 4 Summer Students per year.

- **Italy**

On 13 December 2007, the *Istituto Nazionale di Fisica Nucleare* (INFN) signed an agreement to establish a programme enabling its most qualified personnel to spend some time at CERN in the framework of the LHC activities. The 'Special INFN Associate programme' was thus set up and since 2007 the INFN has supported a total of 38 associates at CERN.

- **Japan**

Part of the interest produced by the first contribution of Japan to the LHC machine has been used since 1996 to cover the cost of approximately 3 Fellows per year (previously under the CERN-Asia Fellowship programme and since 2005 under the CERN-Japan Fellowship programme) and short-term Associates.

- **Portugal**

In 1996, the *Agência de Inovação* (AdI) in Lisbon signed an Agreement to establish a programme which is now integrated into the framework of the Trainee programme. The aim of this programme is to enable young people specialising in engineering and technology to gain initial practical experience in CERN's high-tech activities for periods from one to two years. Between 2005 and 2009, 54 Portuguese Trainees worked at CERN.

- **Spain**

The *Ministerio de Ciencia e Innovación* in Madrid (MICINN) signed an Agreement (revised in 2010) which is integrated into the framework of the Trainee programme. As mentioned above for the Portuguese programme, the aim is to enable young people specialising in engineering and technology to gain initial practical experience in CERN's high-tech activities, for periods from one to two years. Between 2005 and 2009, 19 Spanish Trainees worked at CERN.

Additional agreements for the training of students have been signed with Germany, Norway and Greece. Furthermore, several other countries, including, Sweden, Denmark, the Netherlands, Israel, Japan, the Czech Republic and the USA, have financed additional positions in the Summer Student programme.

H. FAS Gender Data

As an equal opportunities employer, CERN has been closely monitoring the gender distribution of personnel appointed at all levels, to ensure as diverse a representation as possible across the Member States and particularly regarding the representation of women within the Organization.

Figure 21 shows the percentage of candidates and selected women in the FAS programmes for the period 2005-2009. The percentage of female applicants decreases significantly when one compares junior appointments (up to Fellow level) with senior ones (Associates). The low percentage of female applicants for senior appointments reflects the demographics of the applicant pool.

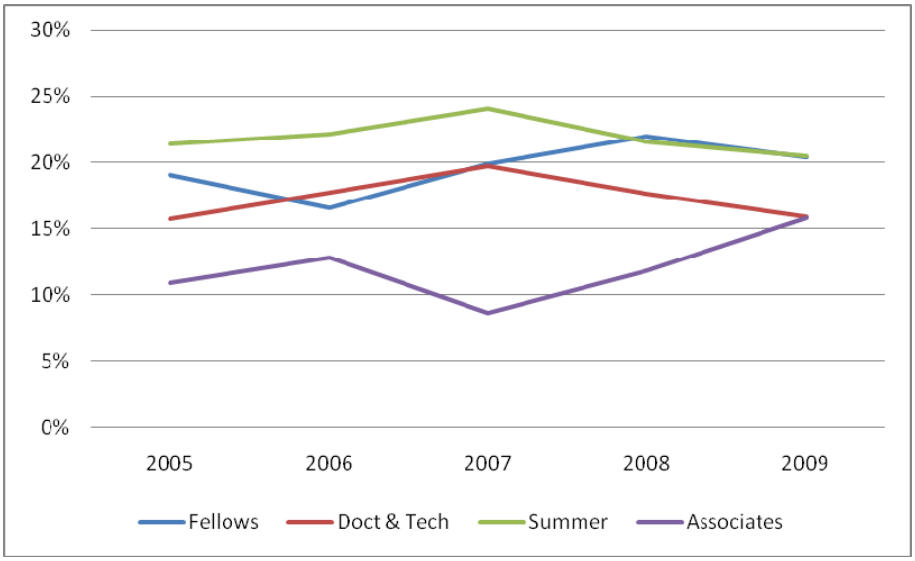


Figure 21 Percentage of Female applicants for different FAS programmes.

Figure 22, overleaf, illustrates the gender bias on selection. The volatility of the bias for the Scientific Associates appointments is due to the small data sample (e.g. 6 women applicants in 2005 of which 3 were selected). In general the data indicate that, on average, there is no gender bias at the selection level (except for a consistently small positive bias for Summer Students).

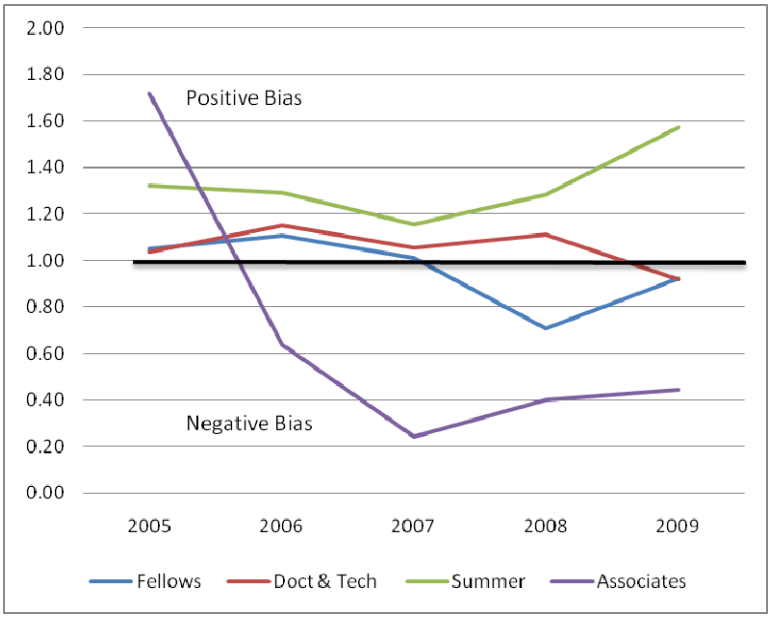


Figure 22 Gender bias for applicants across the FAS programmes.

Nationality distributions for Fellows, Doctoral and Technical Students show different rates of female participation depending on the country of origin (see Figure 23). The data indicate a reduced percentage of female researchers from countries with a long undergraduate degree, such as Germany, as well as a strong presence of female researchers from Mediterranean countries, in accordance with European data.

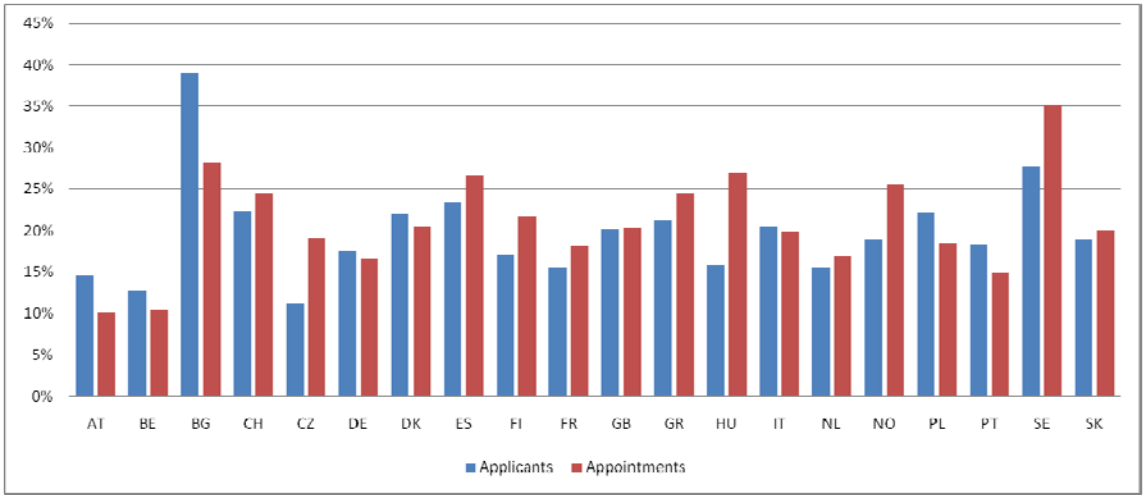


Figure 23 Percentage of female applicants and appointments for Fellows, Associates and Students

Efforts will continue[1] to increase the number of applications from female scientists and engineers.

[1] Although somewhat beyond the time frame of this report, CERN took part in a recruitment event *Top Women, Top Careers*, in Brussels in November 2010.

3. Overview of the Main Proposed Actions for the Coming Five Years

As shown in the previous chapters, the FAS programmes continue to fulfil their mission of providing first-class training and research opportunities to a large community of scientists and engineers in a very successful way. The 2005 Five-Yearly Review introduced significant revisions of the FAS programmes including revised payment schemes for students and associates and the introduction of the Junior and Senior Fellowship categories. These modifications have laid the foundations for increased external financing sources, expansion, growth and overall improvements in the programme. Tools have been introduced upstream to measure the applicant pool, the quality of selected candidates (supervisor questionnaires) and the overall quality of the programmes (exit questionnaires).

In order to respond to the evolving needs and to optimise the use of available resources, some modifications and adjustments to the existing programmes are deemed useful.

A. Associated Members of Personnel

For Associated members of personnel (Scientific & Corresponding Associates and Students), subsistence allowances have been indexed in line with the Geneva Cost Variation Index and they are deemed to remain commensurate with living costs in the region.

Given the increased activities related to LHC data-taking, it is expected that the number of Scientific Associate appointments will increase. Currently the Scientific Associates budget is an integral part of the Fellowship (Personnel) budget but it is proposed to separate this budget from 2011 onwards, so as to allow increased flexibility and a more streamlined management of subsistence.

Regarding the Corresponding Associates, it is proposed that the criterion of exclusion of the four largest Member States with a view to targeting this population in the poorly-balanced Member States and in States entering the recently-created Associate States category.

A review and adaptation of the internal circulars which define the various categories of personnel is being carried out to provide increased flexibility, particularly for appointments on external funds.

B. Fellowship programme

In line with the introduction of the Senior and Junior Fellowship components, a review of stipends has been carried out with several research institutions identified as

comparable with CERN. Analysis of the data indicates that for both the Junior and the Senior Fellowship programmes, the financial conditions at CERN remain attractive, with stipends for CERN Junior Fellows being considered generous. In addition, there is no important distinction between the seniority-based supplements paid to Junior Fellows and those paid to Senior Fellows, although the latter programme is much more selective.

For these reasons it is proposed to adjust the seniority supplements applied to the Junior Fellowship programme with a small reduction. Given the increasing interest in the Junior Fellowship programme, Management believes that these reductions may be applied without loss of competitiveness of the programme. The resulting savings will be invested into enhancing training possibilities, which are a key component of the Fellowship programme.

Given the prestige and selectivity of the Senior Fellowship programme, Management proposes no adjustment to the current level of stipends or to seniority supplements.

Following the successful introduction of the Graduate Engineering Training programme, an increase in applicants and appointment of engineers for this component of the programme is anticipated.

C. Student programmes

During the period 2005-2009, the Technical and Doctoral students have gone from strength to strength. Initial concerns regarding the reduction in Doctoral Student subsistence rates have proven to be unfounded as this programme has seen a notable increase in both applicants and appointments as well as external funding contributions.

The period under review has also seen a revision and increase in the administrative students programme which peaked at 20 students per annum. Given the similarities with the Technical Student programme and in order to streamline administration it is proposed that the management of the Administrative Student programme comes under the responsibility of the TSC.

Given the increased numbers of participants within the programmes, continued monitoring of the quality of projects and supervision will be carried out. Also given that the programme duration now ranges from 4 to 14 months, monitoring of the use of the various durations will be carried out.

The review period has seen a significant increase in NMS activity, particularly for the Summer Students. The NMS Summer Student programme is largely managed outside the HR Department but with close coordination between those involved. To obtain synergies and economies of scale, a merging of the two programmes should be examined.

No changes are proposed for the student subsistence payments which are indexed in line with the Geneva cost-of-living.

D. Graduate Engineering Training programme

The Graduate Engineering Training programme was introduced at the end of 2009 and initial appointments started in 2010. Given the initial high level of success of the programme, the Management has recently committed to increase the funding for this initiative as of 2011. This should allow approximately 40 appointments per annum.

E. Associate Member States

The recent Council decision to create the status of Associate Membership of the Organization gives States holding that status access to all the FAS programmes, subject to a ceiling. Currently several of the programmes are still limited to Member State participants only. As CERN's membership increases, so should the success, and diversity of its FAS programmes and CERN looks forward to welcoming participants from the Associate States into these programmes. Measures are currently under study as to how to implement this in practice such as by adapting the Corresponding and Scientific Associate statuses.

4. Summary of achievements during the review period

In this document we review the evolution and achievements of the FAS programmes over the period 2005 – 2010 and we outline some proposals for the future.

The main achievements can be summarized as follows:

1. An overall increase in candidates, interest and appointments across the breadth of the Fellowship, Associate and Student programmes with particularly an increased interest in engineering possibilities leading to the introduction of the Graduate Engineering Training scheme.
2. An increase in external funding, both from certain Member States and particularly from the European Commission.
3. A streamlining of administrative processes in order to cope with the increased workload associated with the expansion of the various programmes.
4. Increased monitoring, particularly in the qualitative aspects of the programmes with the introduction and follow-up of exit questionnaires.
5. Increased publicity and outreach of the range of opportunities offered by CERN.

Our proposals for the future involve small modifications to the programmes and a continued follow-up of the qualitative aspects of the programmes.

5. Recommended strategy for the years 2011-2015

The Scientific Policy Committee is invited to recommend and the Council is invited to approve the following strategy for the Fellows, Associates and Students programmes for the years 2011-2015:

- harmonisation of the Junior Fellow stipends with those offered by pre-Doctoral schemes in comparable organisations,
- consolidation of the prestige of the Senior Fellowship programme by increasing the differentiation between the Senior and Junior categories introduced in the 2005 Five-Yearly Review,
- increased investment in training elements of the FAS programmes,
- maintaining the subsistence rate levels for Associated Members of Personnel including Doctoral and Technical Students,

on the understanding that the full implementation details of the strategy, including the proposed amendments to the financial and social conditions as well as to the Staff Rules and Regulations, is submitted for the Council's approval in document CERN/FC/5497 – CERN/2946.

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