

Evaluation of the FWF mobility programs Erwin Schrödinger and Lise Meitner

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1 Introduction

The present study provides the first external evaluation of two mobility programmes of the Austrian Science Fund (FWF), the “outgoing” Erwin Schrödinger Programme providing grants for research stays in excellent research institutions abroad for a duration of 10 to 24 months¹, and the “incoming” Lise-Meitner-Programme, financing a long term stay of a foreign researcher at an Austrian research organisation. The evaluation has been undertaken by Technopolis at the request of the FWF.

We would like to express our thanks to the FWF staff, who supported us in providing quantitative and qualitative information, results from former internal surveys of the Schrödinger programme, and last but not least e-mail addresses of former grant holders, rendering an electronic survey possible. We also express our thanks to other interview partners. Data related to the 6th Framework Programme have been provided by PROVISO, a common project of the BMBWK², the BMLUFW³, BMVIT⁴ and BMWA⁵.

Three information sources have been used for this evaluation

- Firstly, a series of interviews have been undertaken
 - with administrative staff of the FWF, in charge of the two programmes
 - with Arnold Schmidt, who stands at the origin of the Schrödinger Programme
 - and with representatives of the Federal Ministry of Education, Science and Culture and the Austrian Council for Research and Technology development
- Secondly, the FWF database has been consulted, as well as a PROVISO report on Marie-Curie fellowships
- Last but not least, three online-surveys have been conducted between February and April 2006, addressing Schrödinger grant holders, Lise-Meitner grant holders and Lise-Meitner co-applicants. Table 1-1 provides the exact number of respondents. E-mail addresses have been provided by the FWF, and all potential respondents we had an e-mail address for have been included in the sample, irrespective of the year of participation. Some persons still receiving the grant declined from responding, as they couldn't yet comment on the impact it may have on their career.

Response rates were highest in the group of Schrödinger grant-holders, where nearly two thirds of those receiving the questionnaire responded, it was 54% in the group of Lise-Meitner co-applicants, and still exceeded a third in the case of Lise-Meitner participants.

¹ The duration corresponds to the present programme design.

² Federal Ministry for Education, Science and Culture

³ Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management

⁴ Federal Ministry of Transport, Innovation and Technology

⁵ Federal Ministry of Economics and Labour

Table 1-1 Response rate to the evaluation surveys

| | Schrödinger Grant holders | LM-Participants | LM-Co-applicants |
|-----------------|---------------------------|-----------------|------------------|
| Valid addresses | 1082 | 210 | 192 |
| Responses | 698 | 72 | 103 |
| Response rate | 65% | 34% | 54% |

The report is structured as follows: Chapter 2 provides an introduction to the two programmes, as well as some background information on comparable programmes in Austria. Chapters 3 and 4 discuss the Erwin Schrödinger programme and the Lise-Meitner programme respectively, based primarily on results from the questionnaire survey. Chapter 5 presents key elements of the administration of the two programmes as well as feedback from the questionnaire surveys. Chapter 6 concludes, and interview partners and references are listed in chapter 7.

2 Rising attention to mobility as a key factor for academic success

The adoption by the European Commission of a Communication proposing the creation of a European Research Area (ERA)⁶ introduced a wave of discussion about how to get there, including the aspect of human resource development and mobility. A second Communication from the Commission to the Council and the European Parliament entitled “A mobility Strategy for the European Research Area”⁷ states (p5):

“Mobility, a well-known and effective way of training skilled workers and disseminating knowledge, is a core element in research development, which has not yet been fully exploited in Europe. Unlike other fields, where mobility periods are usually short and often restricted to certain career stages, the mobility of researchers concerns all ages and steps in a researcher's career path. It permits the creation and operation of multi-national teams and networks of researchers, which enhance Europe's competitiveness and prospective exploitation of results. Increased physical mobility of researchers, whether transnational (movement between countries) interregional or intersectoral (movement between academia and industry is therefore essential in order to take a maximum advantage of available resources.”

and continues:

“By making mobility a central element throughout the different stages of the research career, the present strategy aims at making Europe more attractive for researchers.

This includes

- retaining researchers in Europe, attracting third country researchers to the EU, and encouraging researchers based outside the EU to return;
- enhancing the transnational mobility of researchers and strengthening the European dimension of research careers (...).”

The challenge of mobility programmes lie in letting people leave without loosing them in the long run. However, mobility is a process opening up new career paths, which are not predictable. Since it's beginning, the issue of assuring that Schrödinger Scholars return to Austria has been on the agenda at the FWF. The results of this evaluation will show that the understanding of what may be a long-term benefit for Austria has changed somehow since then.

History of the Erwin Schrödinger and the Lise-Meitner programmes

When the Erwin Schrödinger programme was launched in 1985, mobility did not yet have such a privileged position on the research-policy agenda. According to Prof. Arnold Schmidt, who proposed this funding scheme to Heinz Fischer, when he was appointed Federal Minister of Education and Research in 1983, representatives of the research ministry still believed that there was no demand for such a high-level scholarship programme in Austria. The key-elements of the first proposal for the Schrödinger programme was that young researchers should have the opportunity to go to first class research institutes around the world, the hosting institute should be involved in the application phase, and the programme should be administered by the Austrian Research Foundation (FWF). A steering committee with representatives of the research ministry, the FWF and external experts then defined the programme,

⁶ COM(2000) 6 final

⁷ COM/2001/0331 final

deciding that it should be open to any discipline, and that the Schrödinger fellow should show her/his willingness to return to a research-position in Austria in advance.

The Lise-Meitner programme started seven years later, in 1992, inviting young and high-level researchers from abroad to a research stay in Austria, with the aim of stimulating the local research landscape and setting the ground for long term cooperation with former Meitner fellows, once they returned to their home institute.

The FWF-mobility grants and comparable programmes in Austria

A sensitive issue in grant provision concerns the co-existence of similar programmes, which may complicate access and visibility. This problem led to the establishment of a working-group in 2005, initiated by a decision of the Austrian Council for Research and Technology Development (RTFE)⁸ and chaired by the BMBWK, comparing funding structures in Austria and developing proposals for reforms and adaptations.

The RTFE recommendation includes an overview of existing scholarships, showing that at the post-doc level, the Schrödinger grant is the biggest outgoing mobility programme in Austria, and Lise-Meitner the biggest incoming programme. The second source of funding for post-doc grants in Austria is the Austrian Academy of Science, administering the programmes APART and Max-Kade⁹, which have a partly different orientation than the FWF-mobility programmes: APART, which has been launched in 1993, also funds domestic research stays, whereas Max-Kade is restricted to natural and technical sciences as well as medical science, financing research stays in the USA. Other post-doc programmes administered by the Austrian Academy of Sciences are the AAS-CEE (Austrian Academy of Sciences Central and Eastern European Scholarship)¹⁰ and ROM, a scholarship of the BMBWK at the historical institute in Rome.

The most similar programmes to Schrödinger and Lise-Meitner in terms of target groups and objectives are the European Marie-Curie programmes, as they are both open to all disciplines and are pure mobility programmes.

⁸ Rat für Forschung und Technologieentwicklung: Ratsempfehlung vom 18. January 2005, Stipendienreform.

⁹ An American-German foundation

¹⁰ sponsored by RZB / AGRANA / UNIQA

Table 2-1 Major mobility programmes for post-docs coming to and from Austria

| Title | Number of grants per year | Amount/year | Geographical mobility | Research domain |
|------------------------------|---------------------------|---|-----------------------|---|
| Erwin Schrödinger | 50-70 | € 26.300 -€ 31.300 after tax, country dependent | outgoing | all |
| Lise Meitner | ~20 | € 58.300 salary and € 8.000 for other costs | incoming | all |
| Max-Kade | 15 | US\$ 42.500,- taxable | outgoing, USA only | natural and technical sciences as well as medical science |
| APART | 16 | € 53.000,- taxable | local and outgoing | all |
| Marie-Curie ^{11,12} | 20 (FP6: 2002-2006) | €47.000-70.500 + other eligible costs | outgoing | all |
| Marie-Curie ^{7,8} | 34 (FP6: 2002-2006) | €47.000-70.500 + other eligible costs | incoming | all |

Source: Data from www.fwf.ac.at, Austrian Academy of science (annual reports), PROVISIO, <http://euresearch.ch/de/mobility.htm>, own calculations.

¹¹ All FP 6. Seven further Austrian Marie-curie grant holders went to Austrian research organisations.

¹² FP6. Data on Marie-Curie participation: European Commission, calculations: ©PROVISIO, a project of the BMBWK, the BMLFUW, the BMVIT and the BMWA. Data on the Amount of the Marie-Curie grants: See <http://euresearch.ch/de/mobility.htm>

3 The Schrödinger grant

3.1 Aims and objectives

The Schrödinger programme has the following objectives:

- Young and excellent Austrian researchers get an opportunity to spend one to two years at the research institute that is the best one for her/his research purpose
- The hosting institute shall provide sub-disciplines, approaches, methods, techniques which are not (sufficiently) represented in Austrian research institutes
- After her/his stay abroad, the grant holder shall return and make use of the acquired know-how

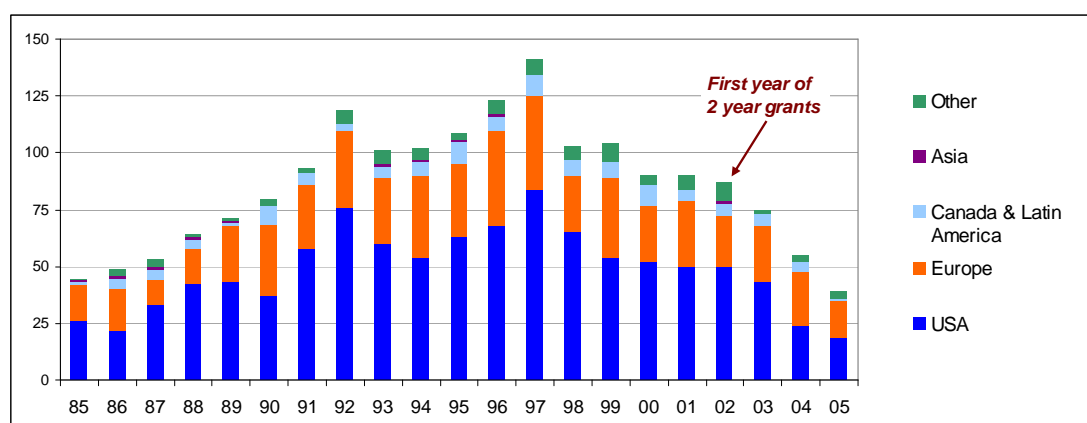
Seen as a research-policy measure, rather than a programme targeting the individual researcher¹³, the programme is conceived as an “instrument for the development of the highest qualified young research generation, as well as for the preparation of young researchers for international cooperation.”¹⁴

Any researcher under 35 years of age and who is an Austrian resident can apply for a grant. Funding depends on the destination, and currently varies between €26 300,- and €34 000 per year.

3.2 Budgets and funded researchers: efficiency

From 1985 to 2004, more than 1700 Schrödinger grants were provided (including prolongation grants) for researchers leaving to stay in 33 different countries. By far, the USA has shown to be the most attractive country for Schrödinger fellows, as 57% chose this country. 31% spent their research stay in a European country. In recent years however, the proportion of Schrödinger grant holders going to the USA fell below the 50% mark.

Exhibit 3-1 Number of Schrödinger grants per year of decision, according to the region of destination



Source: FWF, own calculations

¹³ FWF, annual report 1986

¹⁴ FW, annual report 1988

Table 3-1 Destination of Schrödinger fellows

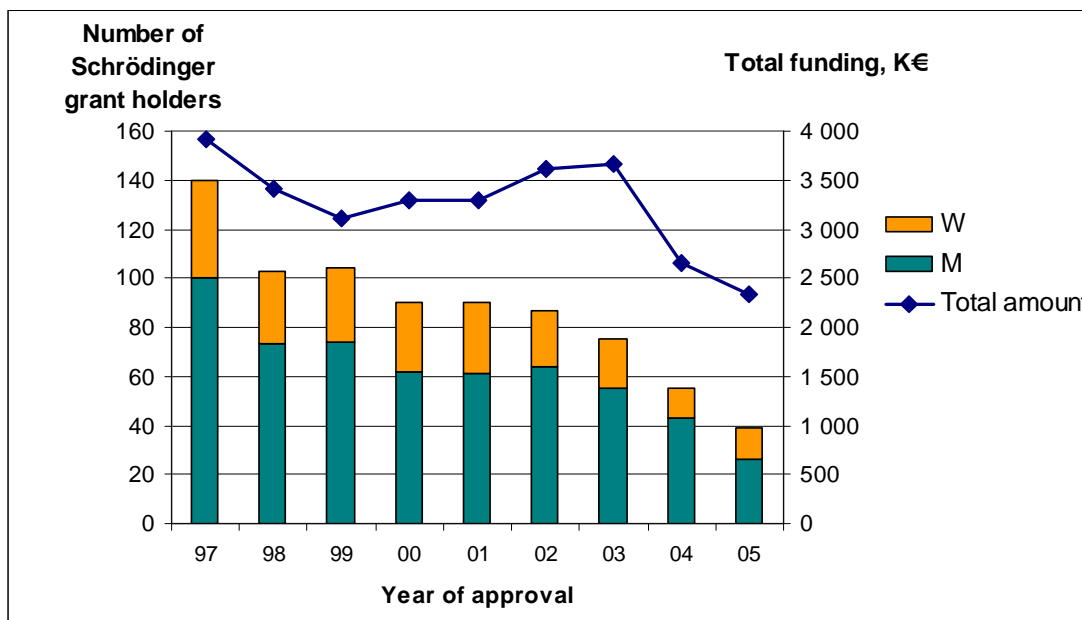
| Year | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | Total |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|
| USA | 26 | 22 | 33 | 42 | 43 | 37 | 58 | 76 | 60 | 54 | 63 | 68 | 84 | 65 | 54 | 52 | 50 | 50 | 43 | 24 | 19 | 1 023 |
| UK | 3 | 4 | 2 | 4 | 7 | 11 | 5 | 5 | 9 | 12 | 10 | 13 | 14 | 10 | 11 | 8 | 6 | 6 | 7 | 8 | 8 | 163 |
| Germany | 5 | 6 | 3 | 3 | 8 | 9 | 10 | 12 | 12 | 10 | 5 | 11 | 9 | 4 | 8 | 8 | 4 | 7 | 7 | 5 | 2 | 148 |
| Canada | 1 | 5 | 5 | 4 | 1 | 9 | 5 | 3 | 5 | 5 | 10 | 5 | 7 | 7 | 6 | 8 | 5 | 6 | 5 | 4 | 1 | 107 |
| Australia | | 2 | 2 | | | 3 | | 5 | 4 | 4 | | 3 | 6 | 4 | 5 | 3 | 5 | 8 | 1 | 2 | 1 | 58 |
| CH | 3 | 1 | 1 | 2 | 3 | 5 | 2 | 3 | 2 | 2 | 3 | 6 | 3 | 3 | 2 | 3 | 4 | 1 | 1 | 2 | 1 | 53 |
| France | 2 | 2 | 1 | 2 | 4 | 1 | 3 | 1 | 2 | 2 | 4 | 2 | 2 | 4 | 6 | 2 | 2 | 2 | 4 | 1 | 1 | 50 |
| Netherlands | 3 | 3 | | 3 | 2 | | 5 | 3 | 3 | 2 | 3 | 3 | 3 | | 3 | | 2 | 3 | 1 | 2 | 1 | 45 |
| Italy | | | 1 | | | | 1 | 1 | | 1 | 2 | 4 | 2 | | 1 | 2 | 2 | | | 3 | | 20 |
| Spain | | | | | | 2 | 1 | 1 | | 1 | 3 | | | 1 | 3 | 1 | 4 | 2 | 1 | | | 20 |
| Denmark | | 1 | 1 | | | | | 1 | | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 3 | 1 | 1 | 1 | | 18 |
| Belgium | | | | 1 | 2 | | | 3 | 1 | 1 | 1 | 2 | 4 | | | | | | | 1 | | 16 |
| Sweden | | | 1 | | | | 1 | 4 | | 2 | | | 1 | | | | | | | | 3 | 12 |
| New-Zeeland | | 1 | 1 | | | | | 1 | 2 | 1 | | 1 | | 1 | | | | | 1 | 1 | 1 | 11 |
| Israel | | | | 1 | 1 | | 2 | | | | 2 | | | 1 | 2 | 1 | | | | | | 10 |
| Japan | 1 | 1 | 1 | 1 | | | | | 1 | | 1 | 1 | | | | | | | | | | 7 |
| Norway | | | | | 1 | | | | | | | | 1 | | | | 1 | 3 | 1 | | | 7 |
| Ireland | | 1 | | 1 | | 1 | | | | 1 | | | | | | | 1 | | | | | 5 |
| China | | | | | 1 | | | | | 1 | | | | | | | | | | | | 2 |
| Costa Rica | | | | | | | | | | 1 | | 1 | | | | | | | | | | 2 |
| Tunisia | | | | | | | | | | | 1 | 1 | | | | | | | | | | 2 |
| Turkey | | | | | | | | | | | | 1 | 1 | | | | | | | | | 2 |
| Africa | 1 | | | | | | | | | | | | | | | | | | | | | 1 |
| Argentina | | | | | | | | | | | | | 1 | | | | | | | | | 1 |
| Brazil | | | | | | | | | | | | | | | 1 | | | | | | | 1 |
| Croatia | | | | | | | | | | | | | | | | | | | | 1 | | 1 |
| Cuba | | | | | | | | | | | | | | | | 1 | | | | | | 1 |
| Hungary | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| Mexico | | | | | | | | | | | | | 1 | | | | | | | | | 1 |
| Russia | | | | | | | | | | | | | | | 1 | | | | | | | 1 |
| Singapore | | | | | | | | | | | | | | | | | | 1 | | | | 1 |
| Slovakia | | | | | | | | | | | | | 1 | | | | | | | | | 1 |
| Slovenia | | | | | | | | | | | | | | 1 | | | | | | | | 1 |
| South-Africa | | | | | | | | | | | | | | | | | 1 | | | | | 1 |
| TOTAL | 45 | 49 | 53 | 64 | 71 | 80 | 93 | 119 | 101 | 102 | 109 | 123 | 141 | 103 | 104 | 90 | 90 | 87 | 75 | 55 | 39 | 1 793 |
| Europe (%) | 36 | 37 | 21 | 25 | 35 | 39 | 30 | 29 | 29 | 35 | 29 | 34 | 29 | 24 | 34 | 28 | 32 | 25 | 33 | 44 | 41 | 31 |
| USA (%) | 58 | 45 | 62 | 66 | 61 | 46 | 62 | 64 | 59 | 53 | 58 | 55 | 60 | 63 | 52 | 58 | 56 | 57 | 57 | 44 | 49 | 57 |

Source: FWF, own calculations

The number of grants and destinations is available in annual reports since the start of the programme in 1985, the FWF's electronic database including funding amounts only dates back to 1997. As seen in Exhibit 3-1, the number of Schrödinger grants was exceptionally high in 1997. Since then, the number of grants dropped, first to the level of the early 1990s, and then more drastically, from more than 100 in 1998, to less than 40 in 2005. Exhibit 3-2 shows the number of grants since 1997, as well as the total amount of funding per year (scale on the right side), differentiating the picture. During the first three years of the observed period, average funding per grant was about constant. It started to rise in 2000. From 2002 onwards, applications for up to a two-year grant have been introduced, explaining the parallel rise in total amount of funding accompanied by a decrease in the number of grants. 2003 was the

last year where applications for extensions were allowed, explaining partly the further decrease in 2004. However, the last two years also show considerably lower total budgets, related to lower global budgets for individual grants since 2004, as well as the delay of one selection round in 2004.

Exhibit 3-2 Number of Schrödinger grant-holders, gender distribution and total funding¹⁵, per year of approval of the grant

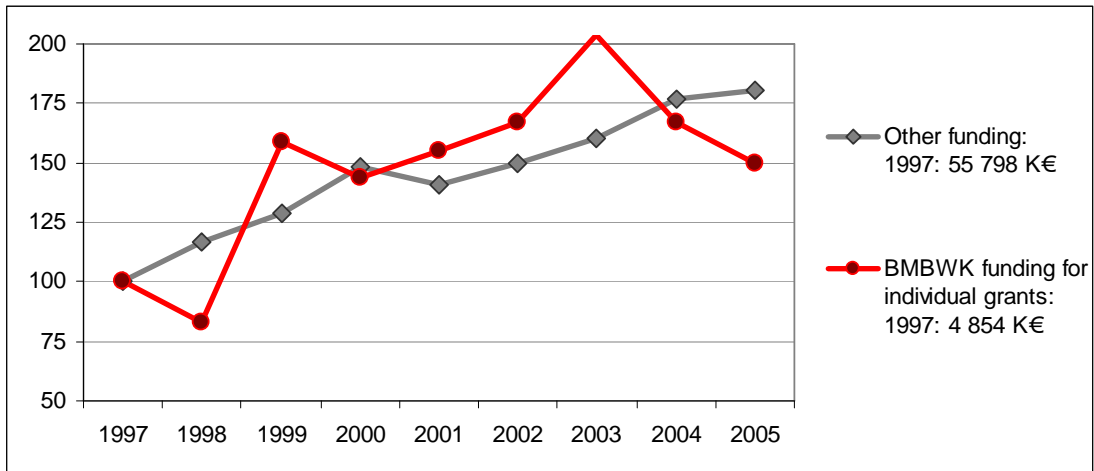


Source: FWF, own calculations

The increase of the FWF's global budget had no positive impact on the Schrödinger programme, as it depends on specific funding from the BMBWK: at present, the FWF receives funds from two different ministries as well as the Austrian Science Foundation. Funding for individual grants is provided by the BMBWK, whereas funding for project based programmes mainly comes from the BMVIT and the Austrian Science Foundation/OENB. In general, no rebalancing of funding is allowed in the FWF between funds coming from different ministries, with the exception of a single credit opportunity, which has already been used in 2003. As a result, a rising global budget of the FWF does not imply an increase in funds for individual grants, as long as the earmarked budget has not risen proportionally.

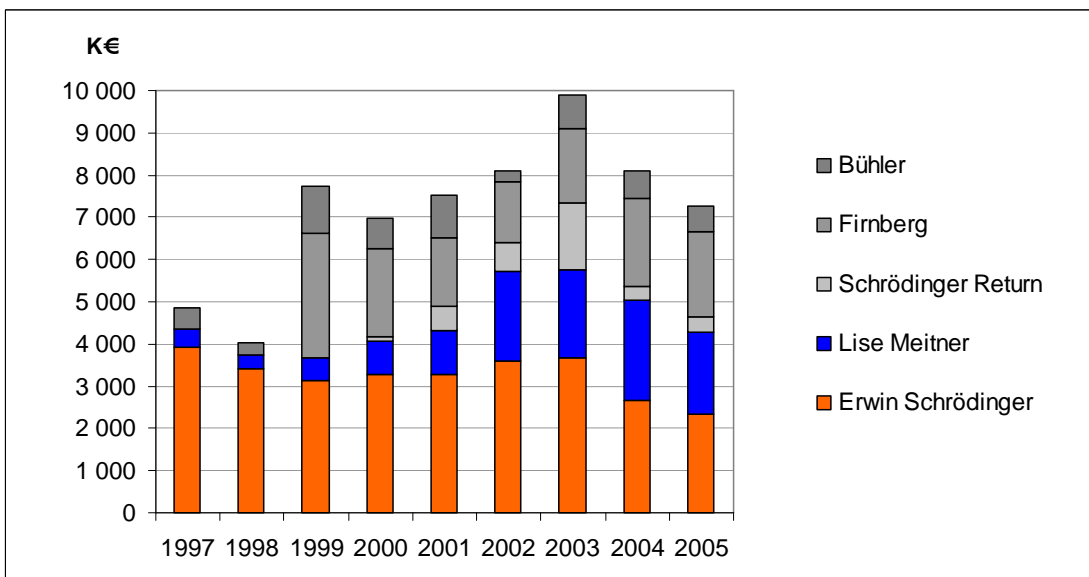
¹⁵ Including prolongations, upgrading of remuneration, adjustment for inflation and accountancy.

Exhibit 3-3 FWF funding development, 1997=100, BMBWK and other funding, 1997 - 2005



Source: FWF, own calculations

Exhibit 3-4 Funding for individual grants (BMBWK), according to programmes¹⁶, 1997-2005, K€



Source: FWF, own calculations

As can be seen in Exhibit 3-4, within the programmes for individual funding, financed by the BMBWK, reductions were most notable in the case of the Erwin Schrödinger programme.

The acceptance rate of applications for Schrödinger grants has been very high for a long time, for many years above 70%, but has fallen below 50% in 2004 and 2005¹⁷.

¹⁶ Including prolongations, upgrading of remuneration, adjustment for inflation and accountancy.

¹⁷ For comparison, the selection rate of the APART programme of the Academy of Sciences is 20%, it is 54% in average over the years 2001-2005 for the Feodor Lynen Research grant programme of the German Humboldt foundation, also showing a decrease from 68% at the beginning of the observed period to 47% at the end. See Humboldt Foundation, annual report 2005.

Generally, there is no budget determined for the Schrödinger programme, according to representatives from the FWF interviewed for this evaluation, Schrödinger candidates are treated advantageously, as long as they pass the quality peer-review control of the FWF. There is a consensus that a mobility project can not be deferred, as a classical research project may, because it is a window of opportunity particular to a specific moment in a young researchers career. However, since 1997, budgetary constraints led to an earmarking of budgets for a couple of programmes, according to the origin of funds. Since then, mobility programmes together with the majority of grants supporting female researchers are financed by funds from the BMBWK.

In 2004 and 2005, budget constraints obliged a more selective approach, leading to the low numbers of accepted scholarships discussed above.

Table 3-2 Acceptance rate of Schrödinger grant candidates

| Year of decision | Acceptance rate | Year of decision | Acceptance rate |
|------------------|-----------------|------------------|-----------------|
| 1985 | 34% | 1997 | 77% |
| 1986 | 62% | 1998 | 69% |
| 1987 | 50% | 1999 | 74% |
| 1988 | 72% | 2000 | 63% |
| 1989 | 76% | 2001 | 74% |
| 1990 | 71% | 2002 | 73% |
| 1991 | 80% | 2003 | 76% |
| 1994 | 71% | 2004 | 47% |
| 1995 | 71% | 2005 | 46% |
| 1996 | 73% | | |

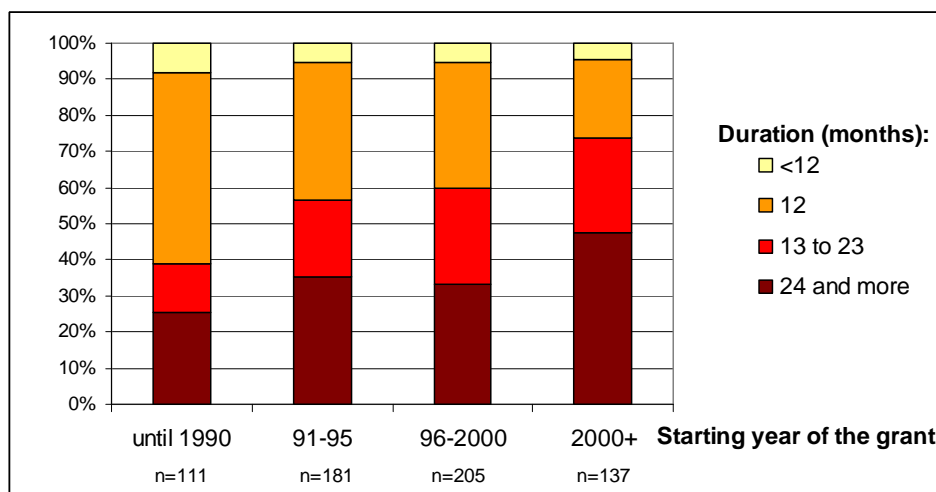
Source: FWF annual reports, own calculations

3.3 Duration of the funding

The Schrödinger programme had initially foreseen a stay of up to 12 months, with a possibility of extension on the basis of a mid-term evaluation and a second application, up to two years. Since 2002, it has been possible to apply for a 24-month grant, meaning that applications for extensions are therefore no longer necessary.

The survey conducted for this evaluation shows that an effective duration has continually increased since the beginning, when more than 60% received the grant for only up to a year, whereas since 2000, nearly 50% stay abroad for two years as Schrödinger fellows, and only 25% stay 12 months or less.

Exhibit 3-5 Duration of the grant, according to it's starting year



Source: Technopolis survey

In general, the grant is conducted until the end, with only 6% of scholarships cancelled ahead of schedule, half of which are due to a job offer.

Table 3-3 Cancellation ahead of schedule

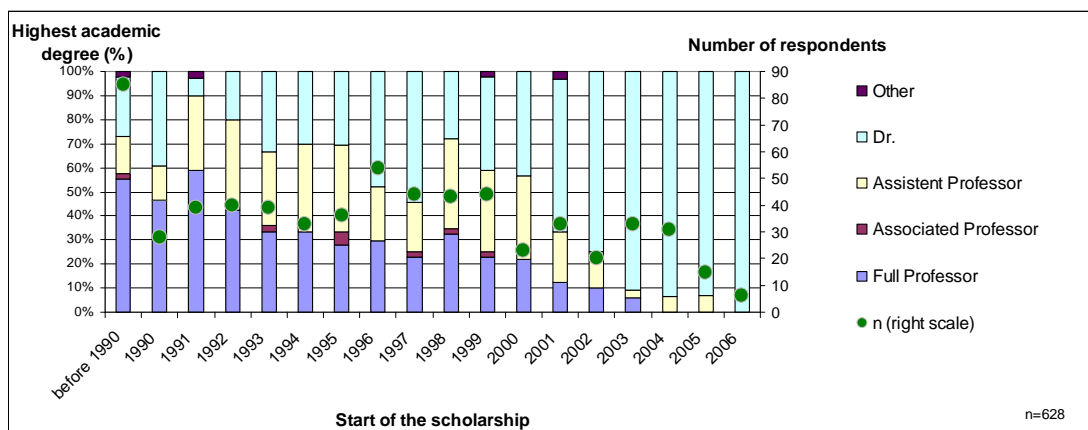
| | | Details | Total |
|---|----------------------------------|---------|-------|
| No cancellation ahead of schedule | | | 94% |
| Scholarship cancelled ahead of schedule | | | 6% |
| Reasons for cancelling | I was offered a job | 49% | |
| | I got another scholarship | 30% | |
| | I got a training position | 5% | |
| | My research place was inadequate | 3% | |
| | Personal reasons | 14% | |
| | | n = | 37 |
| | | | 650 |

3.4 The profile of Schrödinger fellows

The Schrödinger grant has the reputation of producing elite researchers in Austria. It is therefore interesting to understand the career and trajectory of former grant holders. There are no data on individual career paths, allowing comparison for a given year, the position of former Schrödinger grant holders with a control group of candidates that had their proposal refused or researchers with a similar profile but no Schrödinger grant. However, the questionnaire survey allows a comparison of the academic degree and professional position of former grant holders since the beginning of the programme. This analysis shows that more than 50% of the researchers that have received a Schrödinger grant at least 15 years ago, have

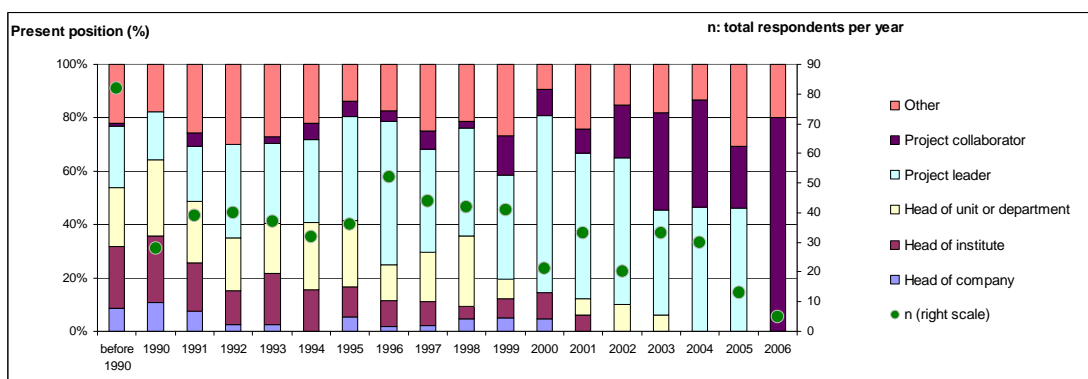
become a full professor since then. The proportion lies above 30% for former fellows that were financed in the following five years, and still lies at 20% within fellows from the years 1997 – 2000.

Exhibit 3-6 Highest academic degree¹⁸ and starting year of the scholarship



Source: Technopolis survey

Exhibit 3-7 Present position of Schrödinger fellows according to the year of the grant



Source: Technopolis survey

The majority of former Schrödinger fellows very quickly become project leaders, and secure a principal position (head of company, institute, unit or department) within 15 years of receiving the grant.

Most former Schrödinger fellows remain active in basic research. Differences according to gender are negligible; however, there are considerable differences according to the research domain, with one out of ten researchers in social sciences, natural sciences and biology not remaining in basic research, whereas 20% of technical scientists move to applied research and 23% of medical scientists move to other activities, mainly becoming independent specialists.

¹⁸ It is well known that the system of academic degrees is not only complex, but also changing over time. The present chart is clearly a simplification of reality, the following terms have been used for translation: Prof. = Full Professor; Doz.=Assistant Professor, Ao Prof= Associated Professor.

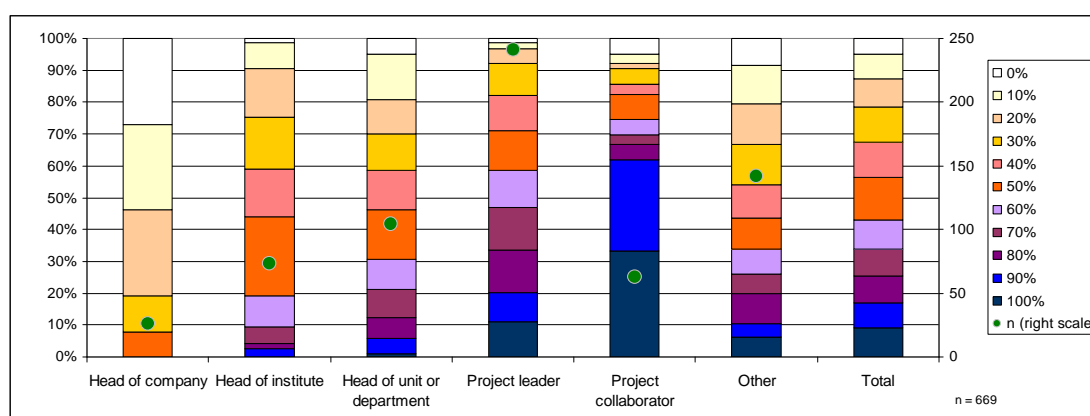
Table 3-4 Working sector and research domain

| | Biology | Humanities | Medical sciences | Natural sciences | Social sciences | Technical sciences | Other | Total |
|-------------------|---------|------------|------------------|------------------|-----------------|--------------------|-------|-------|
| Basic research | 91% | 86% | 58% | 89% | 95% | 66% | 59% | 75% |
| Applied research | 7% | | 12% | 6% | 2% | 20% | 8% | 9% |
| Clinical research | | | 7% | | | | | 2% |
| Other activity | 2% | 14% | 23% | 5% | 2% | 14% | 33% | 14% |
| n | 45 | 43 | 179 | 218 | 43 | 80 | 63 | 671 |

Source: Technopolis survey

Remaining in basic research does not necessarily mean that a high research intensity can be maintained: as the higher the position, the lower the research intensity, even if still more than 50% of respondents claim to spend half or more of their time doing research. Final comments on the survey underline that the Schrödinger grant represented a unique opportunity for recipients to entirely concentrate on research.

Exhibit 3-8 Research intensity according to the present position



Source: Technopolis survey

3.5 Objectives and their realisation

The objectives of the Schrödinger programme are the promotion of scientific work at leading foreign research institutions, combined with the facilitation of access to new scientific areas and methods, to contribute – following a return to Austria – to the further development of science in Austria. The two personal goals formulated in the questionnaire relating to “use of a new methodology or technique” and “specialisation” and which cover the first set of objectives, are directly related to the stay abroad. It is not surprising, that the vast majority of (former) fellows state that these objectives are important or very important (see Exhibit 3-9).

However, there are significant differences in the importance given to objectives according to the research domain:

- Specialisation is particularly important for medical researchers (63% saying it is very important, with 33% saying it is important), and plays a minor role for technical scientists (33% and 54% respectively, with 12,5% saying it is not important). As medical scientists, biologists give high or very high importance to

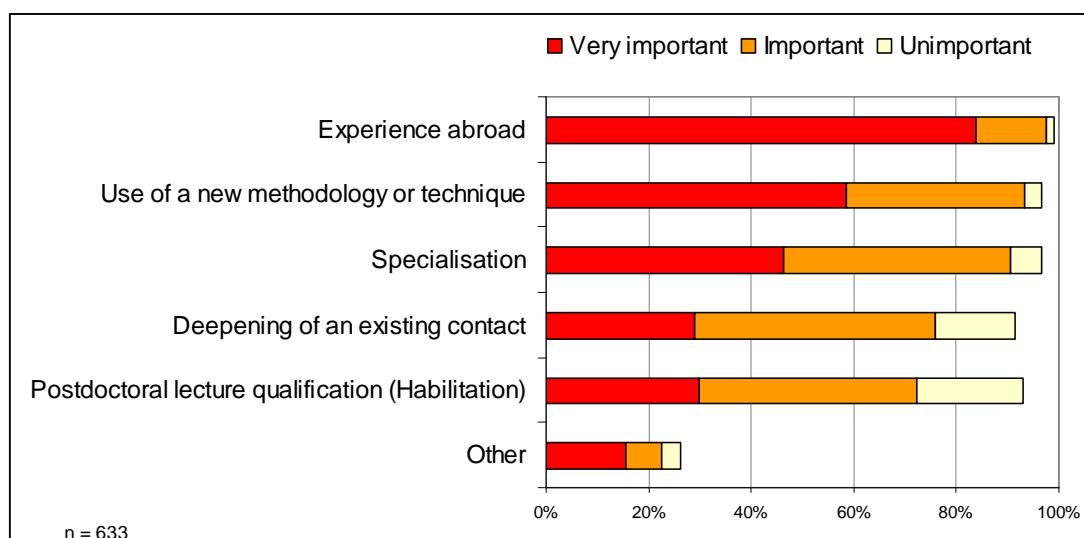
specialisation, only 2% say it is not important, whereas more than one out of 10 natural scientists and social scientists (11% and 12,5%) say that specialisation is not important as an objective.

- Concerning the acquisition of a new methodology or technique, once more medical scientists are on top of the list, as it is an important goal for all of them, and for three quarters it is very important. They are followed by natural scientists (68% and 29,5% respectively), and biologists (63% and 37%). On the contrary, researchers in the domain of humanities do not give the same importance to this objective, as only 23% say it is very important, for 28% it is not important. For social scientists, 19% say that this goal is not important; and 11% of technical scientists agree.

This analysis indicates that the individual objectives of medical scientists best fit with the global objectives of the Schrödinger programme, as there is an effective need for specialisation and the acquisition of new methodologies and techniques in top-institutes around the world, which would explain the attractiveness of the programme for researchers in this domain and the high proportion of grants they hold.

- Experience abroad is the most common objective, but as above, there are significant differences according to the research domain: This time, technical scientists are on the top of the list, with 95% saying it is very important, and nobody replying that it is not important. They are followed by natural scientists and medical scientists (87% answering very important), whereas young researchers in social sciences and humanities are less enthusiastic about this goal, with about 23% and 27% saying it is important (and not “very” important), one out of 10 social scientists says it is unimportant. This is partly explained by the fact that the Schrödinger grant is not the first opportunity for them to go abroad for a longer stay, either for professional reasons or studying. For 65% of technical scientists and 60% of medical scientists, it is the first time stay, while this only holds for 30% of researches in the domain of humanities and 45% of social scientists.
- In the field of social sciences and humanities, it is particularly important to achieve a postdoctoral lecture qualification (“Habilitation”), (61% and 57% answering “very important”, compared to only 12% in biology, 20% in natural sciences and 30% in technical sciences). It is explicitly unimportant for 61% of biologists, 52% of technical sciences and 47% of natural scientists. Interestingly, this is the only objective, which also shows significant differences according to the domain in its achievement: Social scientists tend to fully achieve their “habilitation”, as well as medical researchers (70%), and half of fellows in technical sciences and humanities (57% and 54%).
- Another goal that was listed in the survey concerns the deepening of an existing contact, which is particularly important for fellows in social sciences and humanities (more than 90% saying it is important or very important), and not so much for natural scientists and biologists, with one out of three grant holders saying it is not important.

Exhibit 3-9 Objectives according to their importance: Schrödinger participants



Source: Technopolis survey

Table 3-5 Other objectives, Schrödinger participants

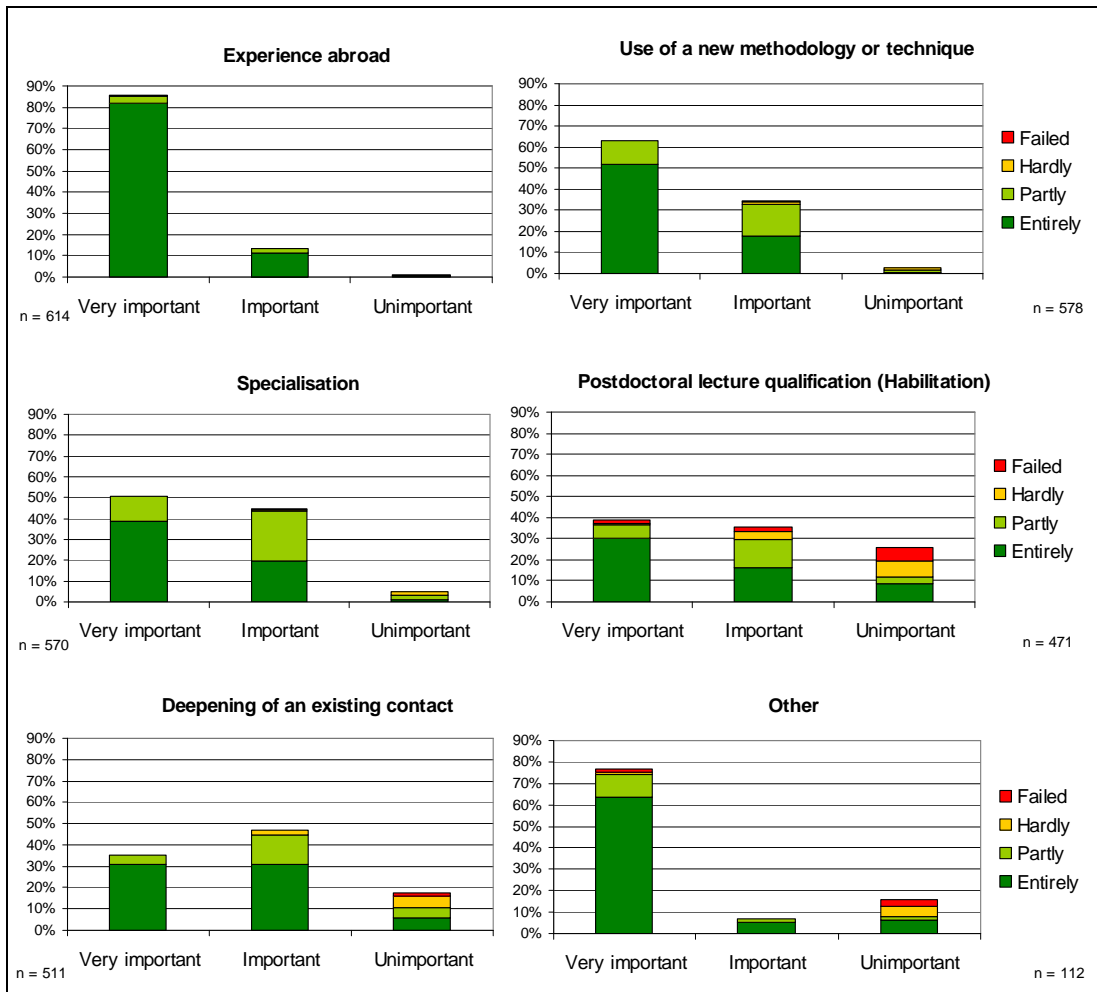
| | of 136 respondents |
|---|--------------------|
| New contacts, networking | 27% |
| Experience in high level group or institution | 10% |
| Qualification | 10% |
| Concentrate entirely on research | 9% |
| Language skills | 7% |
| Personal career | 7% |
| Escape the narrow Austrian community | 4% |
| Publications | 4% |
| Wider horizon | 4% |
| Realisation of a personal project, experience | 3% |
| Experience in another working environment | 1% |
| Working opportunity | 1% |
| Other | 14% |

Source: Technopolis survey

The following chart (Exhibit 3-10) shows both the importance of the goals, and their degree of achievement. It is clear that experience abroad (which is trivial in this context), specialisation, and the acquisition of a new methodology or technique are achieved entirely by the majority of fellows, and partly by the rest. More than half of 474 grant holders that responded to this question also said that they achieved the goal of a “habilitation”, other 24% say that they achieved it partially. Two thirds of 516 respondents say that they could deepen an existing contact with the Schrödinger grant.

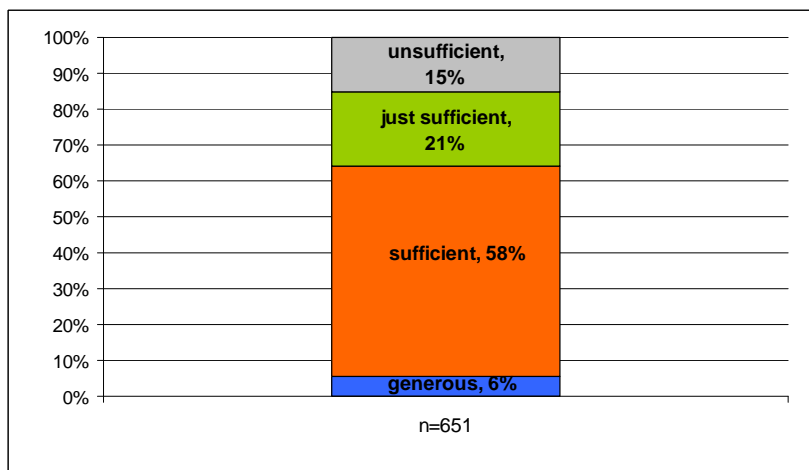
The amount of funding is criticized as insufficient only by 15% of respondents, whereas 64% find it sufficient or even generous.

Exhibit 3-10 Objectives and achievement of these goals, Schrödinger participants



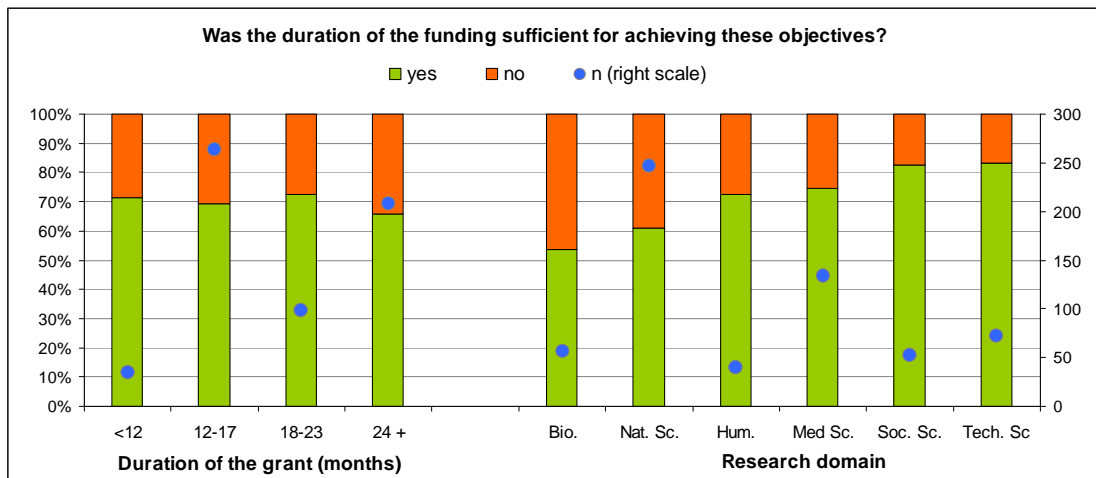
Source: Technopolis survey

Exhibit 3-11 How do you evaluate the amount of the funding?



Source: Technopolis survey

Exhibit 3-12 Evaluation of the duration of the grant regarding the achievement of objectives, according to effective duration and research domain



Source: Technopolis survey

Exhibit 3-5 shows that satisfaction with the duration of the grant is not related to the effective duration itself, but to the research domain that the grant holders were working in. For nearly half of biologists and 40% of natural scientists, the duration was not sufficient to achieve the objectives, whereas researchers active in social and technical sciences tend to be far more satisfied with the duration, with less than 20% claiming the grant to be too short. Researchers from human and medical sciences lie in between, with about one grant holder out of four saying that the duration was too short.

3.6 Results

3.6.1 Publications

The average number of publications per person related to the Schrödinger grants, indicated by the respondents of the questionnaire, is very high: 4 publications in reviewed journals, 0,7 contributions to books, 4,8 lecture and poster presentations, and others, which is very close to publication results of the “project based” programmes¹⁹ funded by the FWF²⁰.

Table 3-6 Average number of publications per respondent, according to category and authorship, Erwin Schrödinger programme

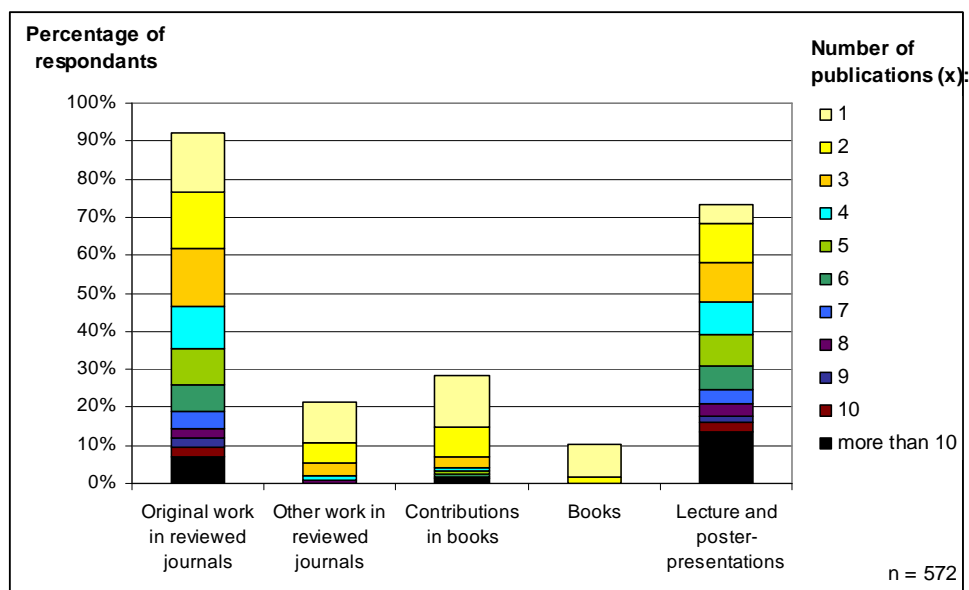
| | | Average number of publications per respondent |
|------------------------------------|--------------------------|---|
| Original work in reviewed journals | First author, in Austria | 0.4 |
| | Co-author, in Austria | 0.2 |
| | First author, abroad | 2.1 |
| | Co-author, abroad | 1.5 |
| | <i>Total</i> | <i>4.2</i> |
| Other work in reviewed journals | First author, in Austria | 0.1 |
| | Co-author, in Austria | 0.1 |
| | First author, abroad | 0.2 |
| | Co-author, abroad | 0.2 |
| | <i>Total</i> | <i>0.5</i> |
| Contributions in books | First author, in Austria | 0.2 |
| | Co-author, in Austria | 0.0 |
| | First author, abroad | 0.3 |
| | Co-author, abroad | 0.2 |
| | <i>Total</i> | <i>0.7</i> |
| Books | First author, in Austria | 0.1 |
| | Co-author, in Austria | 0.0 |
| | First author, abroad | 0.1 |
| | Co-author, abroad | 0.0 |
| | <i>Total</i> | <i>0.2</i> |
| Lecture and poster-presentations | First author, in Austria | 0.7 |
| | Co-author, in Austria | 0.2 |
| | First author, abroad | 2.8 |
| | Co-author, abroad | 1.1 |
| | <i>Total</i> | <i>4.8</i> |

Source: Technopolis survey

¹⁹ SFB Spezialforschungsbereiche (special research programmes), Einzelprojekte (scientific projects), FSP Forschungsschwerpunkt (joint research projects), receiving about 83% of the money granted by the FWF during the years 1998-2003.

²⁰ G. Streicher et al. (2004) showed that FWF funded projects result in 4,6 publications in peer reviewed journals (with significant differences between mean values for fields of science).

Exhibit 3-13 Number of publications resulting from research related to the Schrödinger grant, per category of publication



Source: Technopolis survey

3.6.2 Networking

Besides the acquisition of scientific know-how, one important goal of the Schrödinger programme is the construction of an international network that continues to promote the international anchorage of the Austrian scientific community. In other words, it shall support long lasting networks of participating scientists.

The majority of Schrödinger grant-holders first had contact with their institute abroad before applying for the grant, either personally (54%) or through a colleague in Austria (10%). Others had experience via cooperation, (13% personally and 2% via colleagues in Austria). One grant holder out of 10 did not have any contact.

It is clear that networks persist: Not surprisingly, conferences are the most important place for meeting again. But the contacts go further: 29% regularly visit the institute, 24% work together in common projects, with different forms of financing. 34% have published together after the Schrödinger grant.

Table 3-7 Ongoing contact with persons the Schrödinger fellow worked with abroad

| Type of contact (Multiple answering possible) | Percent of respondents n = 587 |
|---|-----------------------------------|
| No | 12% |
| We meet in conferences | 53% |
| We have published together after the Schrödinger grant | 34% |
| I regularly visit the institute | 29% |
| We work on a common project with separated financing | 14% |
| A researcher from the other country came to Austria for a research stay | 11% |
| We work on a common project with common financing | 8% |
| I am still working in this institute | 6% |
| We work on a common EU-project | 3% |
| Private contact | 2% |
| E-mail contact | 1% |
| Other | 6% |

Source: Technopolis survey

3.6.3 Personal career

In an earlier chapter, we discussed the present professional position of former Schrödinger fellows, indicating a high proportion of principal positions held by grant holders, rising up to 50% for those who participated 15 years ago. Career development is too complex to simply define the additionality of a single programme. However, the respondents of the survey provide an interesting view on the effects of the Schrödinger programme, namely that the long-term impact of the grant on their personal career is more important than its impact immediately after the grant. For 80% of the respondents, the grant was helpful if not very valuable (59%) in achieving their present position.

Table 3-8 What importance did the Schrödinger grant have in your career?

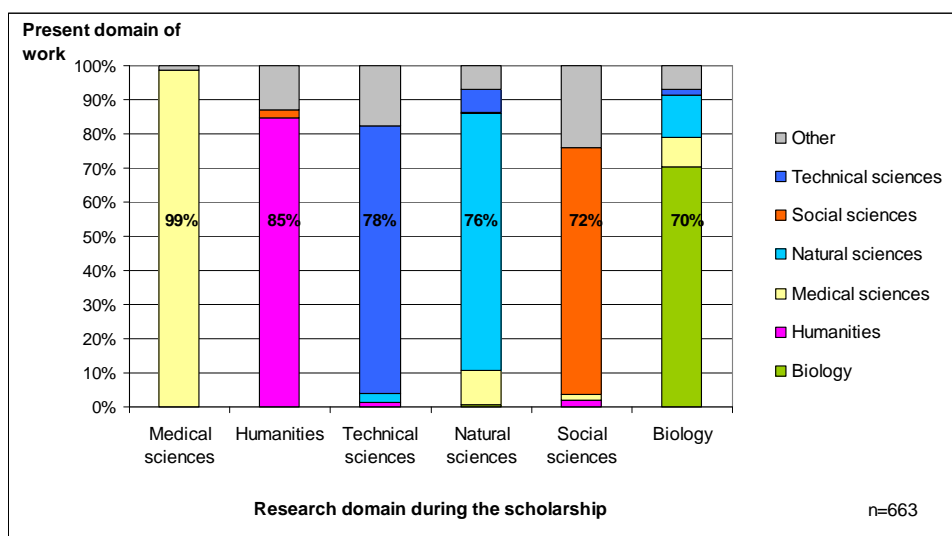
| | For your job immediately after the grant | In achieving your present position |
|---------------|---|---------------------------------------|
| Very valuable | 49% | 59% |
| Helpful | 19% | 21% |
| Relevant | 8% | 10% |
| Negligible | 24% | 10% |
| n= | 556 | 576 |

Source: Technopolis survey

The Schrödinger grant not only facilitates a (long term) career, but also plays a role in promoting fellows work as researchers: for half of the respondents (48%), the Schrödinger grant changed their ideas about their career, 74% out of them wanted to do more research, whereas 4% wanted to do less research, while 22% indicate other arguments.

The working domain of former Schrödinger fellows is relatively stable: Medical researchers all remain in medicine, biologists tend more to move to other disciplines (30%), mainly natural or medical sciences, social scientists also show some tendency to change the domain (28%).

Exhibit 3-14 Movements in the working domain



Source: Technopolis survey

Former Schrödinger fellows remain important clients of the FWF: 39% of the respondents say that they have received further funding of the FWF in later periods, most of them for a research project as project leaders.

Table 3-9 Reception of further funding from the FWF in a later period

| | Percent of respondents n=587 |
|--|---------------------------------|
| Yes, for a research project, as project leader | 33% |
| Yes, for a research project, as collaborator | 7% |
| Yes, for a cooperative project with a foreign research institute | 2% |
| Yes, printing costs | 4% |
| No | 61% |

Source: Technopolis survey

3.7 Ongoing mobility and return rates

According to the objectives of the Schrödinger programme, former Schrödinger fellows should return to Austria, to share their knowledge with the Austrian research community. However, this goal is not entirely achieved: Only 50% of former grant holders went directly back to their former position, 12% got another job in Austria and 8% received another research grant or further funding from the FWF. But even more important than the immediate position is the long-run situation, as 29% of former Schrödinger grant holders currently work abroad (Exhibit 3-15). This number may appear high at a first view, however, comparison with results from the impact analysis of the Marie-Curie programmes show that 43% of former high-level Marie-Curie fellows²¹ stay abroad after the fellowship.

²¹ Researchers who have completed a PhD or who have equivalent experience by having worked for at least 4 years full-time in research after their graduation.

Table 3-10 Working situation directly after the Schrödinger grant

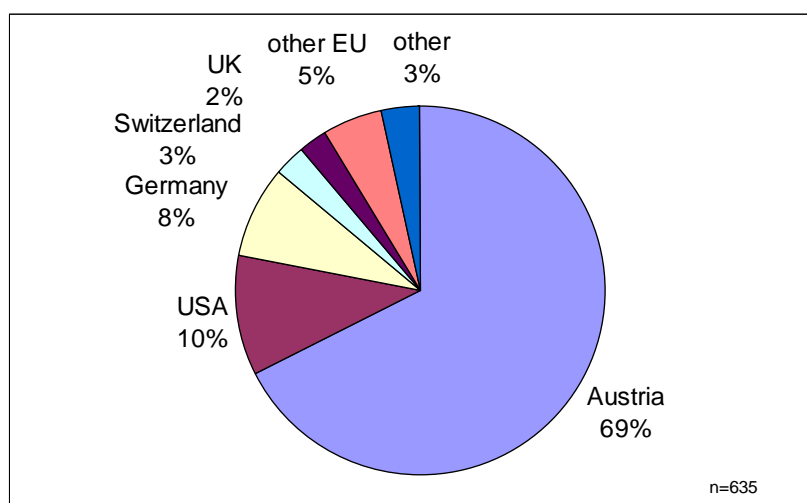
| | Percent of respondents |
|---|------------------------|
| I went back to my former job and position | 51% |
| I stayed at the institute abroad | 13% |
| I accepted a new job in Austria | 12% |
| I accepted a new job abroad | 11% |
| I received another research grant | 6% |
| I had no job for a while | 6% |
| I received another funding from FWF | 2% |
| n = | 587 |

Source: Technopolis survey

It should be noted that for several years, a complementary funding for former Schrödinger researchers existed, (“Schrödinger Rückkehr Programm), allowing researchers under 35 years of age to submit a research project for the period after the Schrödinger grant. This programme was abandoned in 2003, as the eligibility criteria for an individual research project funded by the FWF have been adapted to allow Schrödinger grant holders to apply from abroad. However, the effects of this reform cannot yet be observed in the present evaluation.

More generally, the obligation to show a commitment to return to one’s former position was interpreted more narrowly at the beginning of the programme, and today is less of an excluding criteria for proposals, as the general perception of mobility and career paths has changed over time.

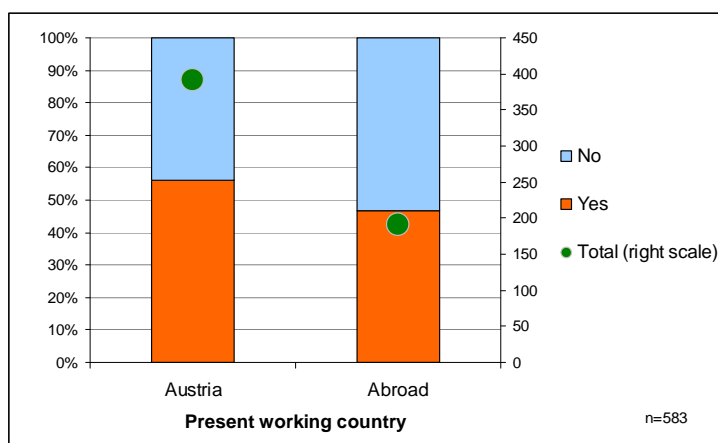
Exhibit 3-15 Present working places of (former) Schrödinger fellows



Source: Technopolis survey

An initial question we asked was whether Schrödinger fellows are simply more mobile than others, and whether those who stay abroad have previously shown a tendency to move work elsewhere than Austria: however, this is not the case. Exhibit 3-16 shows that there is, in both groups – those presently working in Austria and others working abroad – about half of the grant holders formerly had professional experience abroad, the other half had not.

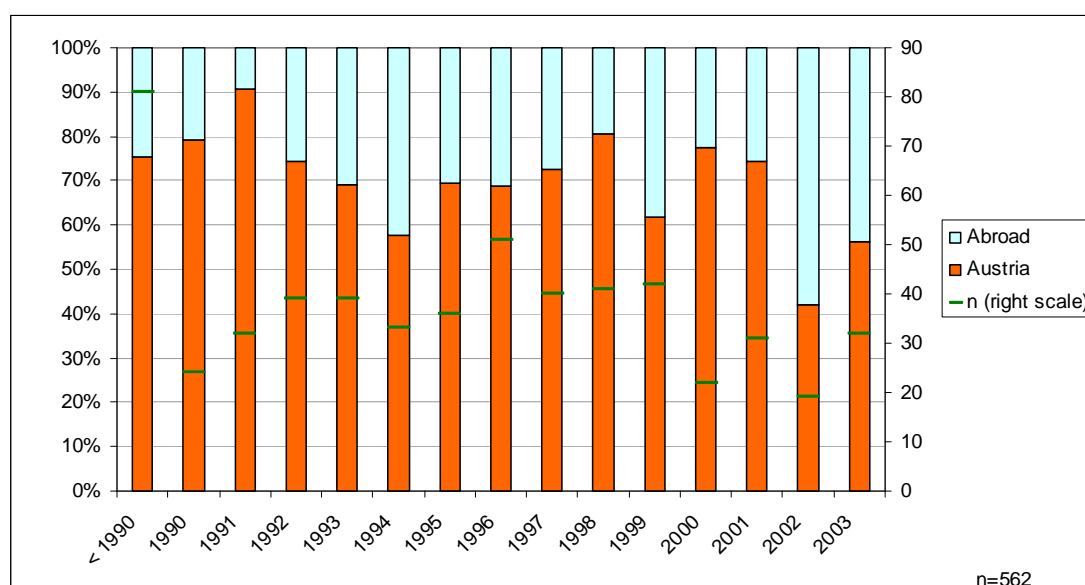
Exhibit 3-16 Previous stay abroad and present working place



Source: Technopolis survey

The picture becomes differentiated by looking at the years of the stay abroad: within those former grant holders for whom participation in the programme goes back to 2001 or earlier, the proportion working abroad drops to 28%, and to 26% for fellows from years before 1996.

Exhibit 3-17 Starting year of the Schrödinger grant and present working country



Source: Technopolis survey

Table 3-11 Starting year of the Schrödinger grant and present working country

| Start of the grant | Present working place | | n |
|--------------------|-----------------------|--------|-----|
| | Austria | Abroad | |
| 2002 and later | 51% | 49% | 51 |
| 96 - 2001 | 72% | 28% | 227 |
| before 96 | 74% | 26% | 284 |
| Total (until 2003) | 71% | 29% | 562 |

Source: Technopolis survey

In conclusion, there is no a priori propensity for mobility determining whether a former Schrödinger fellow works abroad or not. However, with 29% abroad, the part of former grant holders leaving Austria for professional reasons is high. In a linear perspective, some brain drain can therefore be observed. This necessarily opens the debate about the value of these persons abroad, either as a loss of (above average) local research capacity, or as “ambassadors” and “bridge-heads” for national networks.

Testimonies of former Schrödinger fellows that can be found on the Schrödinger-portal page of the FWF, also go in this direction. W. F. Danspeckgruber, presently director of the Liechtenstein Institute on Self-Determination at Princeton University, and Schrödinger fellow from 1985-1987 states that one possibility in international careers is

“that even if one stays far longer abroad, the contact with the home institute is not lost, but one may remain intensively connected with them. This should also be an advantage for them and therefore in the interest of both sides, moreover making a possible come-back easier and more productive.”

Further, the reasons for staying abroad need to be understood: Several former Schrödinger fellows claim that they had difficulties in coming back, most notably as they simply could not find an equally interesting job in Austria as abroad. However, the notion of “returning” has changed since the mid-1985, when the Schrödinger programme was started. Today, the labour market for researchers, particularly high-level researchers, has internationalised. The observations of the Schrödinger programme let us reason that firstly, the combination of experience abroad and a full time research period of 2 years substantially promote the career of a young researcher. Secondly, the home institution is not necessarily able to integrate the Schrödinger fellow and his new competences. He/she therefore looks for new opportunities, which he/she might find abroad. Thirdly, a high proportion of former Schrödinger fellows become professors, which are positions open to international competition. Finally, in such an internationalised environment, Austrians abroad may be a helpful contact point and cooperation partners for the Austrian research community.

3.8 Alternative funding

It is likely that candidates apply for different grants at the same time if there are other scholarships addressing a similar profile of researchers,. Table 2-1 provides an overview of major mobility programmes in Austria, showing that there is no Austrian programme addressing entirely the same target group as the Schrödinger programme, but that both the APART programme of the Austrian Academy of Sciences and the Marie-Curie programmes provide comparable funding for young researchers going abroad. The survey results show that in the case of the Schrödinger grant, 19% of grant holders did apply for another scholarship, one third of them for programmes of the Austrian Academy of Sciences, and 18% for programmes of the European Union.

Table 3-12 Application for other scholarships

| | | Total |
|--------------------------------|---|-------|
| No | | 80.8% |
| Yes | | 19.2% |
| Other scholarship applied for: | Austrian Academy of Sciences | 35% |
| | European Union | 18% |
| | EMBO | 16% |
| | HFSP | 6% |
| | Federal Ministry for Education, Science and Culture (BMBWK) | 3% |
| | Humboldt Foundation | 3% |
| | Swiss National Science Foundation (SNF) | 2% |
| | Others | 34% |
| n = | | 124 |
| | | 646 |

Source: Technopolis survey

4 The Lise-Meitner grant

The Lise-Meitner programme was launched in 1992, and addresses highly qualified scientists aged below 41 years of age, coming from abroad, who want to work at an Austrian research institution. Even if these guests are financed, the final beneficiary is supposed to be the Austrian institute, and in a larger sense the Austrian research community, as the goals are the strengthening of the quality and the scientific know-how of the Austrian scientific community and the creation of international contacts. In this perspective, the application of the researcher has to be co-signed by a researcher of the Austrian hosting institute.

After presenting global statistics of the programme, this chapter will discuss the results of two surveys, one addressed to Lise-Meitner participants, one to their co-applicants, who come from the Austrian institutes recruiting the foreign grant holders.

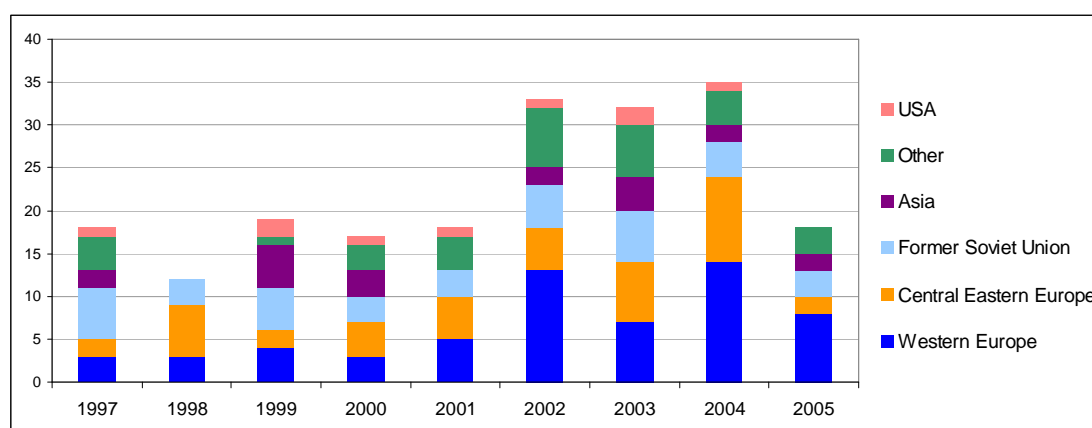
4.1 Budgets and funded researchers: efficiency

The FWF database includes information from 1997 onwards. Since then, 205 Lise-Meitner grants have been awarded by the FWF, including extension grants.

40% come from countries from the former Soviet Union or Central Eastern Europe, followed by Western Europe (30%), and here, nearly half of Lise-Meitner fellows come from Germany.

As can be seen in Exhibit 4-1, the year 2002 shows a considerable growth in the number of grants, with an increase in researchers coming from Western Europe or other world regions.

Exhibit 4-1 Number of Lise-Meitner grants per year of decision, according to the region origin



Source: FWF, own calculations

Exhibit 4-2 shows that the budget for the Lise-Meitner programme more than doubled from 2001 to 2002, accompanied by a less than proportional rise in the number of supported projects, increasing therefore both the number and the funding of scholarships: Whereas at the very beginning, a maximum of 275 000 ATS was provided per year, in 1993 the costs of health insurance were added.

In 1998, a fixed amount of supplementary funding was introduced for grant-holders with children, according to the amounts provided to Schrödinger fellows.

In 1998, the FWF observed that

“The funding increasingly becomes a “Kronländer grant”, however profitable for the Austrian Science community, addressing researchers from Croatia, Hungary, Slovakia, Bulgaria, Russia and the Ukraine.”²²

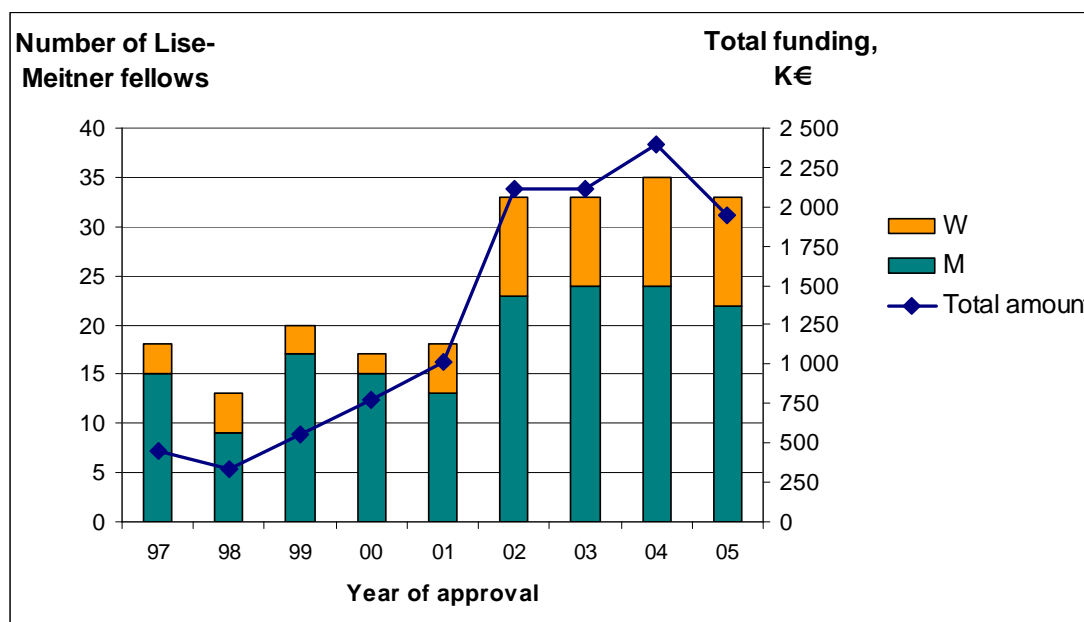
More generally, it was observed that the grant still seemed too low to effectively attract the population it wanted to, namely high level researchers, sufficiently experienced to impact on the local research team.

As a consequence, the grant underwent a reform in 2001/2002, enhancing the financial conditions. Additionally, the grant was opened to researchers of Austrian origin that had acquired their scientific qualification abroad.

Whereas the Schrödinger programme saw its budgets cut and the acceptance rate decreased since 2004, the Lise Meitner programme, that traditionally had a more severe selection process, still benefited from a budget increase in 2004, followed however by a sudden decrease in 2005. A closer look on Exhibit 4-2 shows that the number of grants remained nearly constant. The decrease of the average funding per grant can be explained by a procedural reform in 2005, according to which additional costs can only be accepted after submission of a separate request, whereas up to 2004, an amount of €8 000,- has been included in any grant. Moreover, due to aggravated immigration conditions, lesser grant holders decide to take their family with them, or make them join only later.

²² See Annual report 1998.

Exhibit 4-2 Number of Lise-Meitner fellows, gender distribution and total funding²³, per year of approval of the grant, 1997-2005



Source: FWF, own calculations

The acceptance rate of Lise-Meitner applications was traditionally lower than in the Schrödinger programme. During the first 7 years of the programme, it continuously decreased from 51% in 1992 to 27% in 1997 and 1998. Since 1999, the official acceptance rate includes both first applications and applications for prolongation, which were introduced then. As the acceptance rate for the latter is considerably higher, reaching up to 100%, the reform introduced a level effect, with acceptance rates varying between 40% and 50%, even if the selection process as severe as it was before.

Table 4-1 Acceptance rate of Lise-Meitner candidates

| Year of decision | Acceptance rate | Year of decision | Acceptance rate |
|------------------|-----------------|------------------|-----------------|
| 1992 | 51% | 1999 | 50% |
| 1993 | 44% | 2000 | 44% |
| 1994 | 44% | 2001 | 41% |
| 1995 | 33% | 2002 | 44% |
| 1996 | 37% | 2003 | 48% |
| 1997 | 27% | 2004 | 41% |
| 1998 | 27% | 2005 | 50% |

Source: FWF annual reports, own calculations

²³ Including prolongations, upgrading of remuneration, adjustment for inflation and accountancy.

Table 4-2 Origin of the Lise-Meitner fellows, 1997-2005

| Region | Country of Origin | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | Total |
|----------------|---------------------|--------|----|----|----|----|----|----|----|-----|-------|
| Western Europe | Germany | 2 | 3 | 2 | 2 | 4 | 2 | 2 | 5 | 4 | 26 |
| | Italy | | | | 1 | | 2 | 3 | 3 | 3 | 12 |
| | France | | | 1 | | | 4 | | 3 | | 8 |
| | Ukraine | | | | | 1 | 2 | 1 | | 1 | 5 |
| | Spain | 1 | | | | | 2 | | 2 | | 5 |
| | Netherlands | | | 1 | | | 1 | | | | 2 |
| | Switzerland | | | | | | | 1 | 1 | | 2 |
| | <i>Total</i> | 3 | 3 | 4 | 3 | 5 | 13 | 7 | 14 | 8 | 60 |
| CEE | Hungary | | 2 | | 1 | 1 | 2 | 4 | 1 | 1 | 12 |
| | Slovakia | 1 | 2 | 1 | | | | 1 | 1 | | 6 |
| | Slovenia | | | | 2 | 1 | 1 | 1 | | | 5 |
| | Poland | | | 1 | 1 | 1 | | 1 | | | 4 |
| | Rumania | | | | | 1 | 1 | | 2 | | 4 |
| | Serbia/Montenegro | | | | | | | | 4 | | 4 |
| | Croatia | | 1 | | | | 1 | | 1 | | 3 |
| | Czech Republic | 1 | | | | | | | 1 | 1 | 3 |
| | Bulgaria | | 1 | | | 1 | | | | | 2 |
| | <i>Total</i> | 2 | 6 | 2 | 4 | 5 | 5 | 7 | 10 | 2 | 43 |
| | Former Soviet Union | Russia | 4 | 1 | 3 | 2 | 1 | 3 | 4 | 4 | |
| Ukraine | | 2 | 2 | 2 | 1 | 1 | 1 | 2 | | 3 | 14 |
| Belorussia | | | | | | 1 | 1 | | | | 2 |
| <i>Total</i> | | 6 | 3 | 5 | 3 | 3 | 5 | 6 | 4 | 3 | 38 |
| Asia | China | 1 | | 5 | 3 | | 1 | 2 | 1 | 1 | 14 |
| | Taiwan | 1 | | | | | | 1 | 1 | | 3 |
| | Japan | | | | | | 1 | 1 | | | 2 |
| | Korea | | | | | | | | | 1 | 1 |
| | <i>Total</i> | 2 | 0 | 5 | 3 | 0 | 2 | 4 | 2 | 2 | 20 |
| Other | India | | | 1 | 2 | 2 | | 1 | 2 | 1 | 9 |
| | Australia | 1 | | | | | 2 | 1 | 1 | | 5 |
| | Canada | | | | | 2 | | 1 | | | 3 |
| | Lebanon | | | | 1 | | 1 | 1 | | | 3 |
| | Israel | 1 | | | | | 1 | | | | 2 |
| | Jordan | | | | | | 1 | | 1 | | 2 |
| | Turkey | 1 | | | | | 1 | | | | 2 |
| | Egypt | | | | | | | | | 1 | 1 |
| | Argentine | | | | | | | | | 1 | 1 |
| | Brazil | | | | | | | 1 | | | 1 |
| | Congo | 1 | | | | | | | | | 1 |
| | South-Africa | | | | | | 1 | | | | 1 |
| | Tadzhikistan | | | | | | | | 1 | | 1 |
| <i>Total</i> | 4 | 0 | 1 | 3 | 4 | 7 | 6 | 4 | 3 | 32 | |
| USA | 1 | | 2 | 1 | 1 | 1 | 2 | 1 | | | 9 |
| Not defined | | 1 | 1 | | | | 1 | | | | 3 |
| <i>Total</i> | 18 | 13 | 20 | 17 | 18 | 33 | 33 | 35 | 18 | 205 | |

Source: FWF, own calculations

4.2 Objectives and their realization

The FWF's 1997 annual report titles its chapter on the Lise-Meitner programme with "Lise-Meitner-grants: in many places misunderstood", indicating that "applicants who obviously want to enhance their own research standard are not the

ones addressed by the programme”²⁴. The challenge of the programme is therefore to fund researchers whose objectives overlap with the needs of the hosting institute.

In its 1992 edition, the FWF’s annual report states that

“In the short run, Lise-Meitner fellows shall animate the local research landscape, in the long-run, the contracts with the fellow after their return to their home country in the form of cooperation shall be supported.”

The objectives clearly have the following two dimensions:

- Activities in the Austrian institute: new methodologies and approaches, common publications
- Ongoing contacts with the fellows in the framework of cooperation.

In the years following its introduction, several modifications have been introduced to the Lise-Meitner programme.

- In 1994, it was decided that the grant could only be provided for a maximum of 12 months, researchers wishing to stay for a longer period had to be integrated into a research project of the hosting institute. In the same year, the maximum age was increased from 35 to 40.
- In 1995, it was decided that only researchers that had not yet spent 12 months in Austria were allowed to apply for a Lise-Meitner grant.

In 1996, the FWF conducted a survey, which showed that 43% of former Lise-Meitner fellows thought that 12 months were insufficient. This led to further revisions:

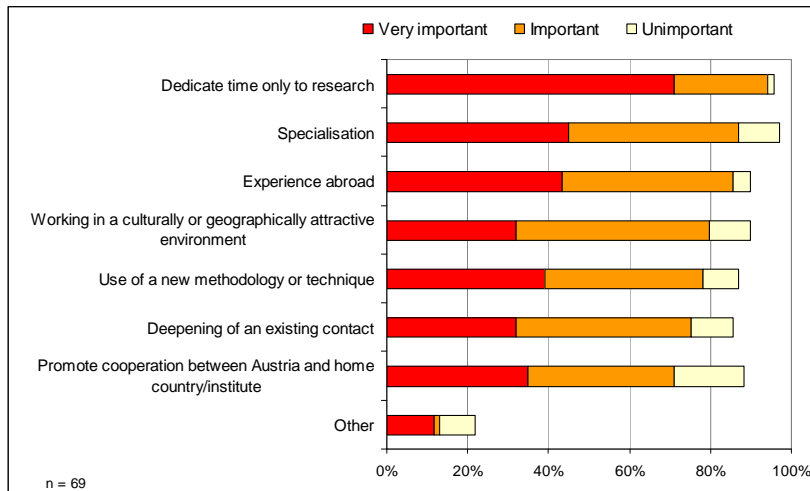
- In 1998, the grant was changed into a post-doc position, implying a contract with the research institute
- The maximum duration was increased to 2 years in 1999. However, the acceptance of a second year still depends on the approval of an application for prolongation.

Lise-Meitner fellows

For Lise-Meitner grant-holders, “experience abroad” is less of a motivation than for Schrödinger candidates. By far, the most important motivation is to dedicate time only to research, showing that the country of activity matters less than the activity itself. The overall objective of promoting the cooperation between Austria and the home country or institute is at the end of the list of objectives, nevertheless, it is shared by 70% of the participants, with half of them finding this objective very important.

²⁴ See FWF, Annual report 1997, p. 40.

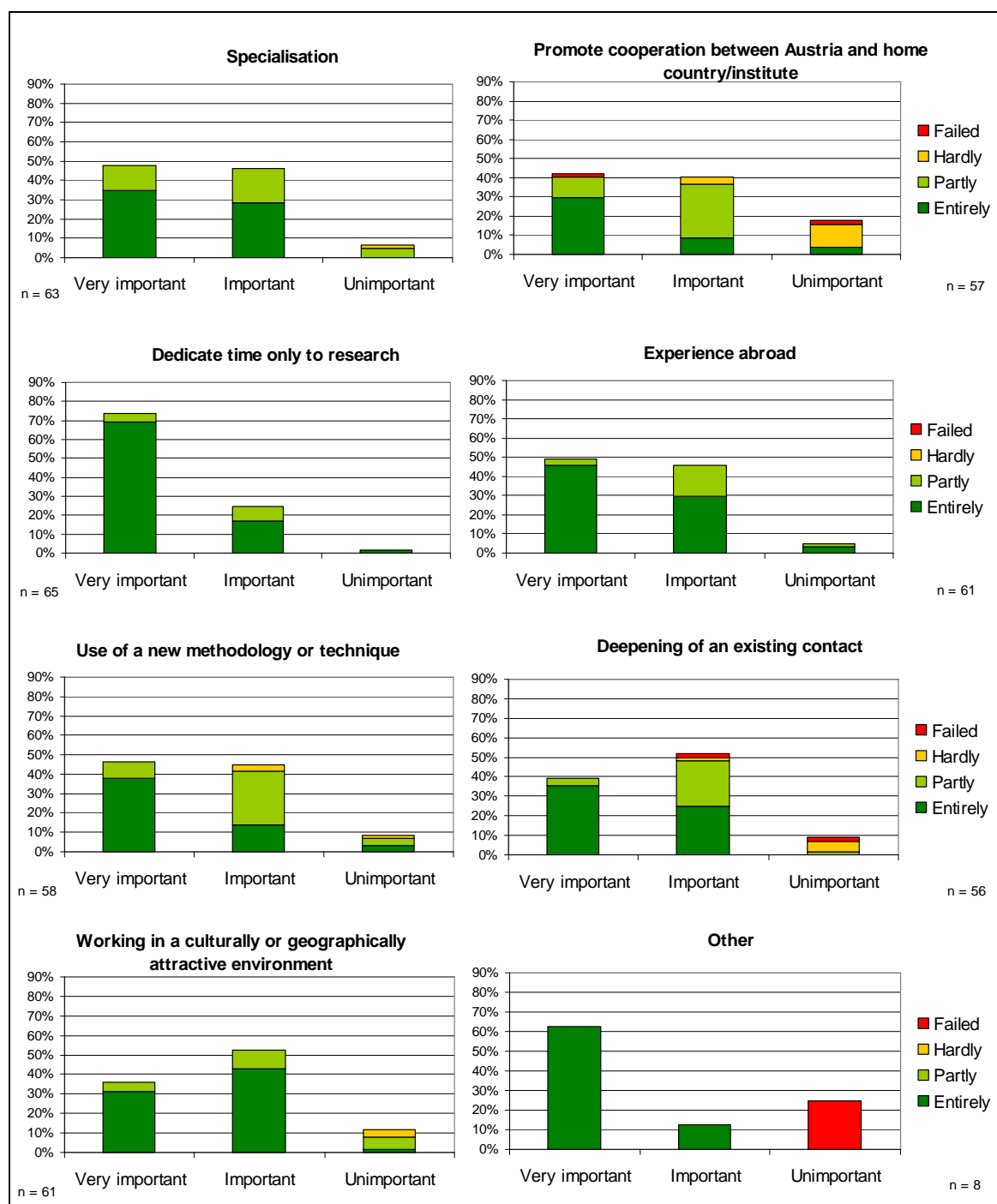
Exhibit 4-3 Objectives according to their importance: Lise-Meitner participants



Source: Technopolis survey

The lower number of respondents does not allow for a calculation of significance according to research domains, as with the Schrödinger programme. Exhibit 4-4 shows that the personal objectives of the Lise-Meitner fellows were achieved to a very high extent. The percentage of fellows who find specialization very important but “only” partly achieved it is only 13% of respondents, and even less concerning the goal of using a new methodology or technique. Objectives that are related more to overall interest than to individual goals like the promotion of Austria and the home country or institute has been entirely achieved by 47% of respondents, even if a higher proportion of those assigning high importance to it and achieving it only partly or not at all is a little higher than elsewhere (29%).

Exhibit 4-4 Objectives and achievement of this goals, Lise-Meitner participants



Source: Technopolis survey

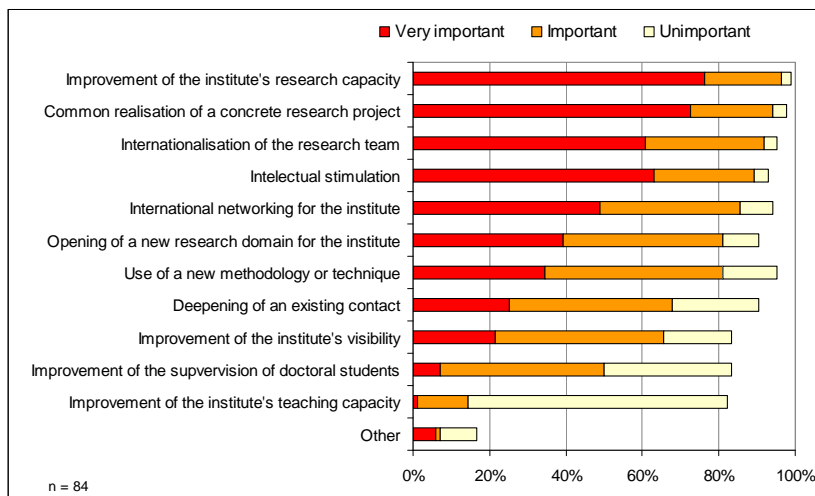
Lise-Meitner co-applicants

We have already underlined that the final target group of the Lise-Meitner programme is the Austrian research community, which is represented in the present evaluation by the researchers co-applying with the Meitner candidate, and generally accompanying them during their stay. Most of these researchers already held a principal position, at least in a research group, or an institute or a faculty. However,

29% of respondents were project leaders, without an institutionalized principal position.

Their objectives very clearly concentrate on the institutes' research capacity around a concrete research project. The recruiting of teaching capacity – which is not a programme goal, but could play a role in a context of missing personnel – is seen as unimportant by a clear majority: on the contrary, the project is entirely research oriented, as it should be. Interestingly, the aim of using a new methodology or technique is achieved by nearly half of the respondents, which underlines a satisfactory know-how flow inwards thanks to the Lise-Meitner project.

Exhibit 4-5 Objectives according to their importance: Lise-Meitner co-applicants

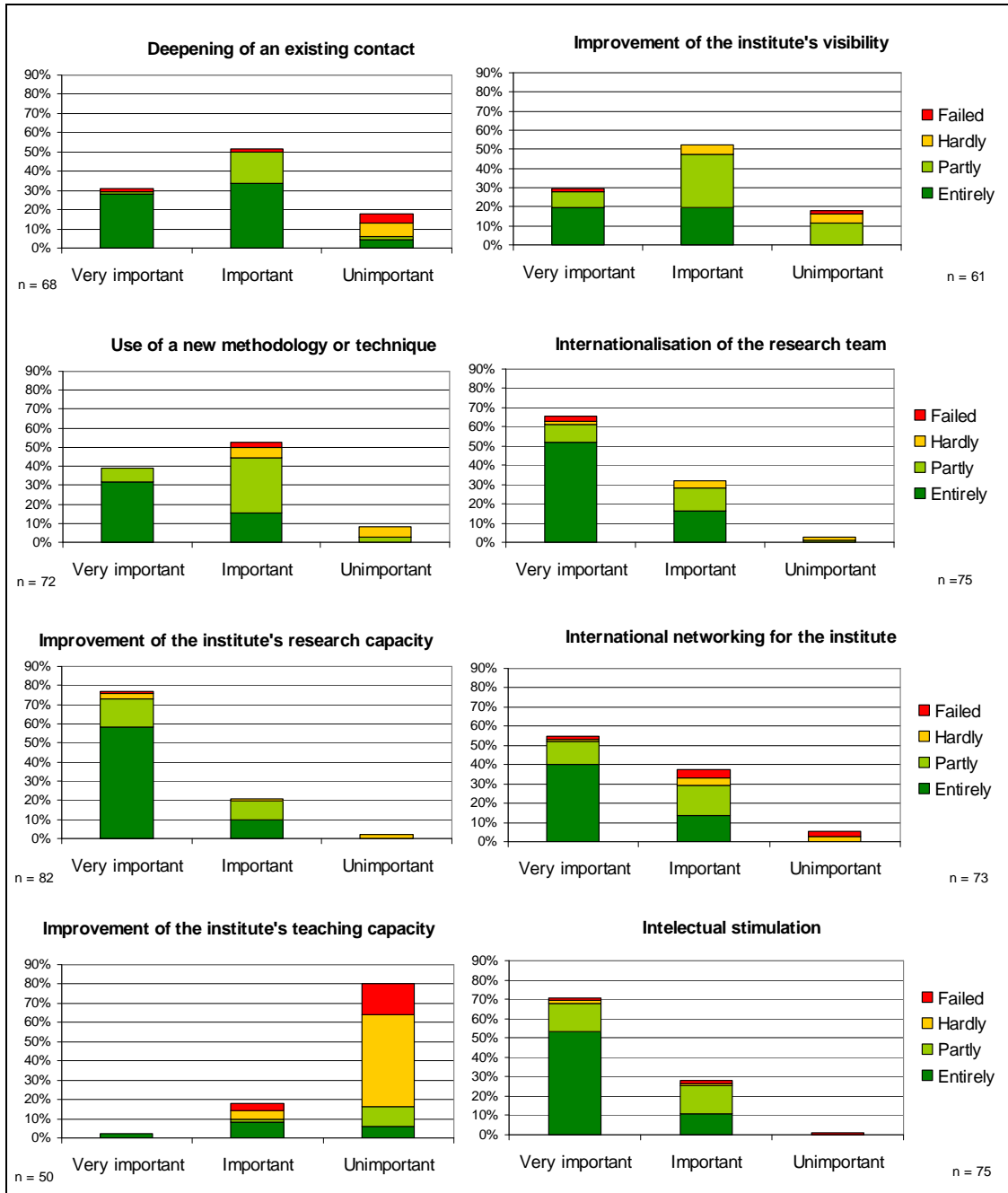


Source: Technopolis survey

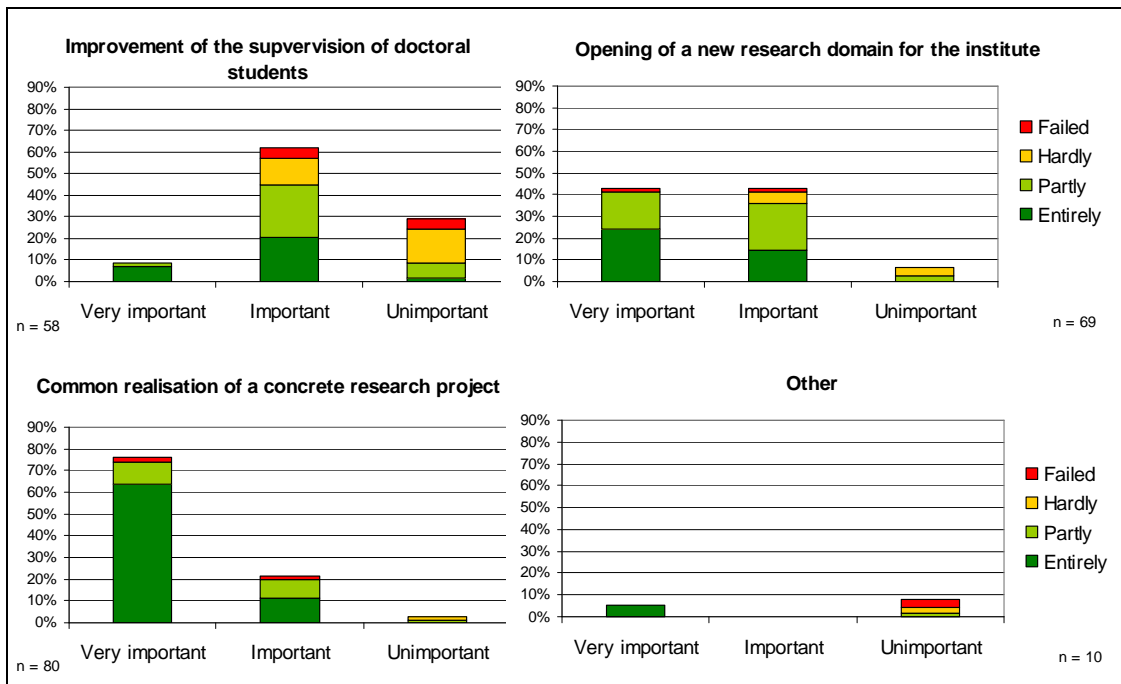
Nearly 70% see the institutes' research capacity improved (“entirely achieved”), more than 70% worked together on a common research project. The institutes that receive a Meitner fellow appear to be open intellectually, as 42% of respondents assert that a new research area could have been opened for the institute, other 45% say that this has partly been the case. For more than the half of the respondents, the objective of international networking for the institute is entirely achieved.

Even if it is rarely a very important objective, the Lise-Meitner fellow also allows for better supervision of doctoral students, at least partly, in more than half of the cases.

Exhibit 4-6 Objectives and achievement of this goals, Lise-Meitner co-applicants



Source: Technopolis survey



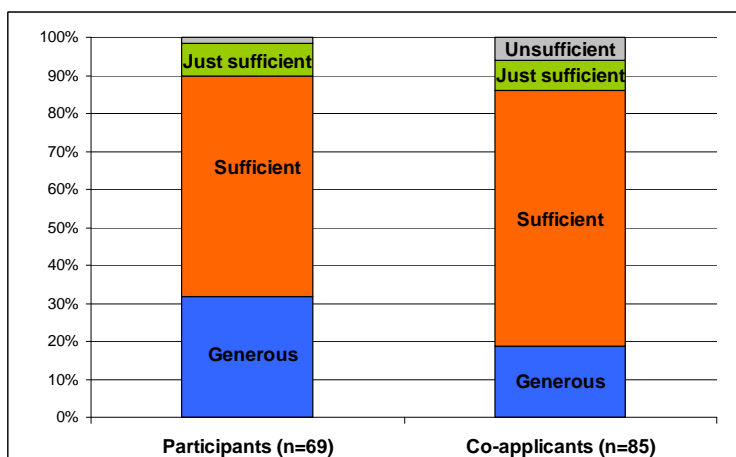
Source: Technopolis survey

4.3 Funding and duration

According to interviews with FWF administrative staff, the amount of the Lise-Meitner has been evaluated previously as too small to attract the high level researchers it was supposed to do. However, an increase of the grant in 2002 led to a rise in the number of applications.

The present evaluation indicates satisfaction with the amount of funding (Exhibit 4-7), even if the co-applicants appear to be more critical than the Meitner participants themselves.

Exhibit 4-7 Evaluation of the amount of the Lise-Meitner funding

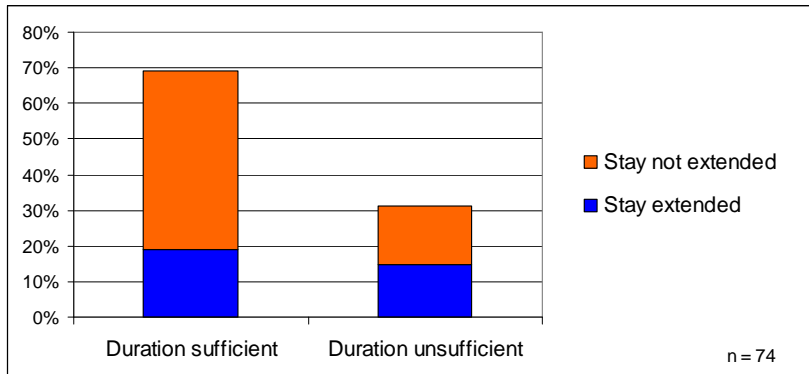


Source: Technopolis survey

There is criticism regarding the duration of the grant (limited to 12 months since 1994), as 30% claim that the duration is insufficient. Limiting the Meitner grant to one year was motivated by the idea that the Meitner fellows who want to stay in the Austrian institute should become integrated in another research project. However,

one out of two Meitner fellows who had indicated that the grant was too short extended their stay (see Exhibit 4-8).

Exhibit 4-8 Evaluation of the duration of the Lise-Meitner funding and extension of the stay in Austria, Lise-Meitner co-applicants



Source: Technopolis survey

4.4 Results

4.4.1 Publications

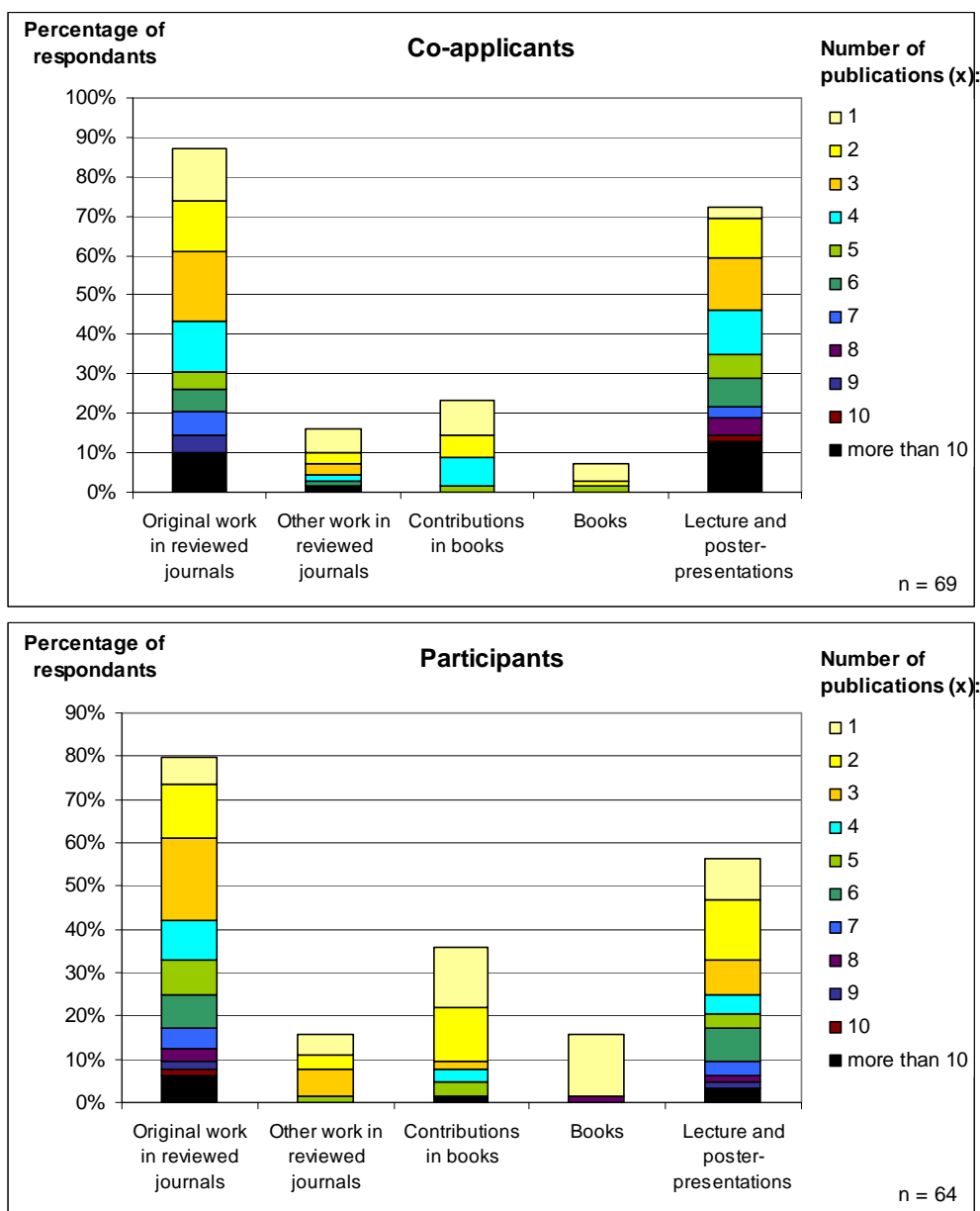
The number of publications originating from a Lise-Meitner grant is even higher than in the case of Schrödinger grants. The respondents to the evaluation survey report around 5 publications per person on average in reviewed journals. Moreover, they indicate 2,9 (participants) and 4,3 (co-applicants) lectures and poster publications, plus books and contributions to books. Whereas the Meitner fellows have been asked whether their work has resulted in publications, the co-applicant was asked whether the results of research with the grant holder led to publications of collaborators of the institute. Table 4-3 and Exhibit 4-9 show that those, as a group, have published more in reviewed journals, lectures and poster presentations than the Meitner fellow themselves who, on the other hand, were particularly successful in writing or contributing to books.

Table 4-3 Average number of publications per respondent, according to category and authorship, Lise-Meitner programme

| | | Average number of publications per respondent | |
|------------------------------------|--------------------------|---|--------------|
| | | Participant | Co-applicant |
| Original work in reviewed journals | First author, in Austria | 1.2 | 0.9 |
| | Co-author, in Austria | 0.8 | 0.8 |
| | First author, abroad | 1.7 | 1.7 |
| | Co-author, abroad | 0.9 | 1.1 |
| | <i>Total</i> | <i>4.6</i> | <i>4.6</i> |
| Other work in reviewed journals | First author, in Austria | 0.1 | 0.2 |
| | Co-author, in Austria | 0.0 | 0.1 |
| | First author, abroad | 0.1 | 0.2 |
| | Co-author, abroad | 0.0 | 0.1 |
| | <i>Total</i> | <i>0.4</i> | <i>0.6</i> |
| Contributions in books | First author, in Austria | 0.4 | 0.2 |
| | Co-author, in Austria | 0.1 | 0.1 |
| | First author, abroad | 0.3 | 0.2 |
| | Co-author, abroad | 0.1 | 0.1 |
| | <i>Total</i> | <i>0.9</i> | <i>0.6</i> |
| Books | First author, in Austria | 0.1 | 0.0 |
| | Co-author, in Austria | 0.0 | 0.0 |
| | First author, abroad | 0.1 | 0.1 |
| | Co-author, abroad | 0.0 | 0.0 |
| | <i>Total</i> | <i>0.3</i> | <i>0.1</i> |
| Lecture and poster-presentations | First author, in Austria | 1.0 | 1.1 |
| | Co-author, in Austria | 0.3 | 0.8 |
| | First author, abroad | 1.3 | 1.6 |
| | Co-author, abroad | 0.3 | 0.8 |
| | <i>Total</i> | <i>2.9</i> | <i>4.3</i> |

Source: Technopolis survey

Exhibit 4-9 Number of publications resulting from research related to the Lise-Meitner grant, per category of publication

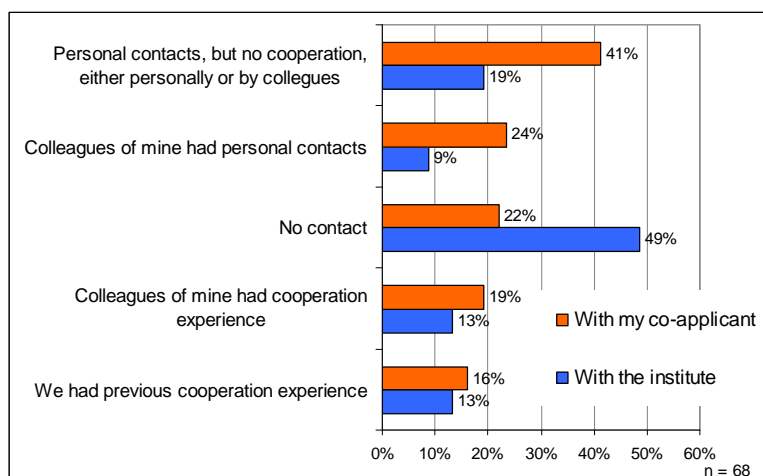


Source: Technopolis survey

4.4.2 Networking

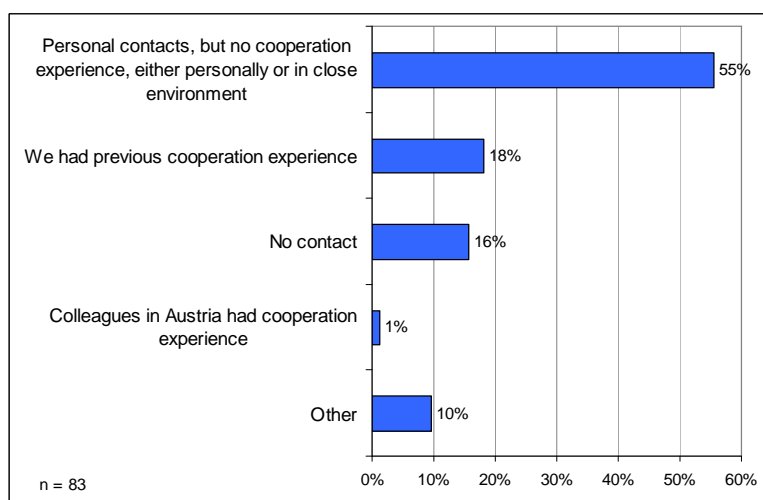
How many contacts have been gained by the Lise-Meitner programme? This depends on the proportion of first contacts within the programme, on the deepening of existing contacts and the longevity of contacts created through the programme: In general, first contacts often existed, but rather with the co-applicant than with the institute. Nearly every third Lise-Meitner fellow says that previous cooperation experience existed, either personally, or by colleagues of the Meitner fellow. The proportion of co-applicants indicating such prior cooperation experience is lower, at 19%.

Exhibit 4-10 Kind of contact the Lise-Meitner participants had with the Austrian institute before the application



Source: Technopolis survey

Exhibit 4-11 Kind of contact the Lise-Meitner co-applicants had with the participant before the application



Source: Technopolis survey

Ongoing contacts after the grant are apparently even closer than between Schrödinger fellows and their hosting institutes: Only 5% of participants and none of the co-applicants claim to have no ongoing contact. On the contrary, one third of the Meitner grants leads to continuing common publication activities after the grant, around one out of four former grant holders regularly visits her or his hosting institute, and some still work there. 13% of the Meitner fellows and 6% of the grant holders say that colleagues from the Austrian institute came later to the home-institute of the guest researcher for a research stay. However, concrete work on common research projects is less frequent in the case of the Meitner programme than it is in the case the Schrödinger programme.

Table 4-4 Ongoing contact between the Lise-Meitner participants and the Austrian co-applicants

| | Participants n = 62 | | Co-applicants n = 81 |
|---|------------------------|---|-------------------------|
| We meet in conferences | 40% | We meet in conferences | 35% |
| We have published together after the Lise-Meitner funding | 27% | We have published together after the Lise-Meitner grant | 38% |
| I regularly visit the institute | 26% | She/he regularly visits our institute | 23% |
| I still work at the Institute | 18% | The project is still ongoing – she/he is still at the institute | 10% |
| One or more of the colleagues of the Austrian institute came to my home-institute for a research stay | 13% | A colleague of our institute is or has been in the home institute of the Lise-Meitner scholar for a research stay | 6% |
| We work on a common project with separate financing | 11% | We work on a common project with separate financing | |
| We work on a common EU-project | 6% | We work on a common EU-project | 1% |
| We work on a common project with common financing | 6% | We work on a common project with common financing | 6% |
| Other | 21% | Other | 30% |
| No | 5% | No | 0% |

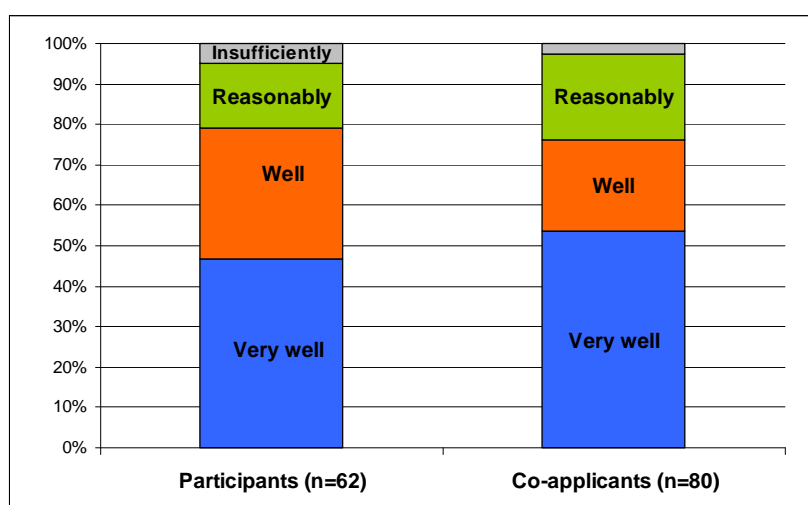
Source: Technopolis survey

4.5 The integration in the institute

In order to achieve the objectives of knowledge-flows and networking, it is crucial that the guest researcher is well integrated within the institute, and does not work in an isolated manner. This section addresses several questions, namely the evaluation of integration by the participants and the co-applicants, the activities the Meitner fellow was involved in (in Austria), and the support in kind received.

Firstly, integration is evaluated by nearly half of the participants and more than half of the co-applicants as very good, one third of participants and 23% of co-applicants said it was good. 5% of participants felt insufficiently integrated within the institute.

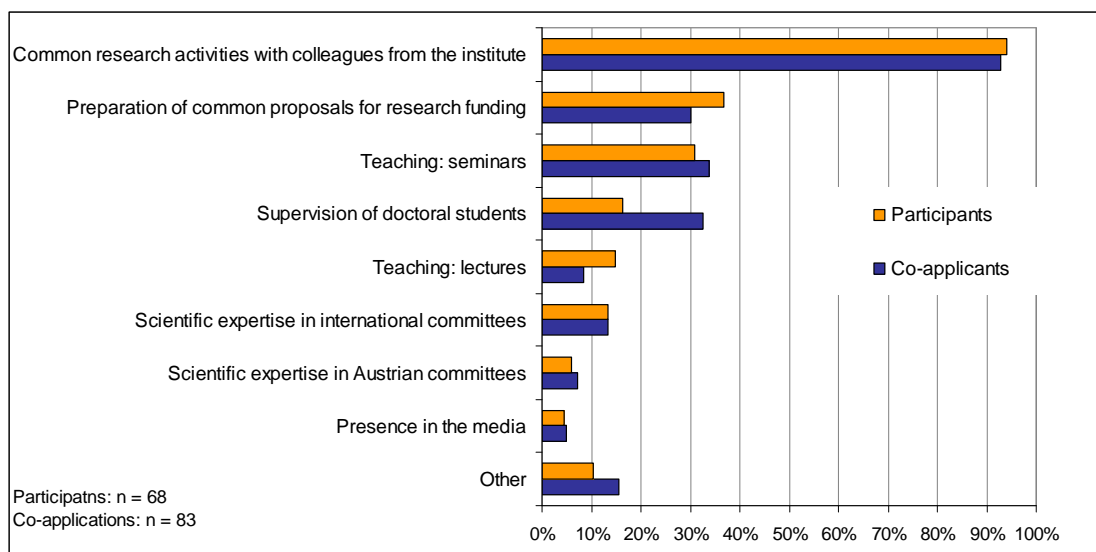
Exhibit 4-12 Integration into the institute’s research team



Source: Technopolis survey

Concerning the activities the grant holder was involved in, the picture comparing the views of participants and co-applicants (Exhibit 4-13) is relatively homogenous: more than 90% say that they participated in common research activities with colleagues from the institute. One third also participated in the preparation of common proposals for research funding, indicating a strong wish for further collaboration. The exception to the norm for participants and co-applicants concerns teaching activities and the supervision of doctoral students, where one out of three co-applicants believes that the Meitner fellow was involved in these activities, however this holds for only 16% of the grant-holders themselves. On the contrary, 15% of participants, but only 8% of co-applicants say that they have held lectures. However, their view coincides again when it comes to seminars, where 30% of both groups declare the Meitner-fellows' involvement.

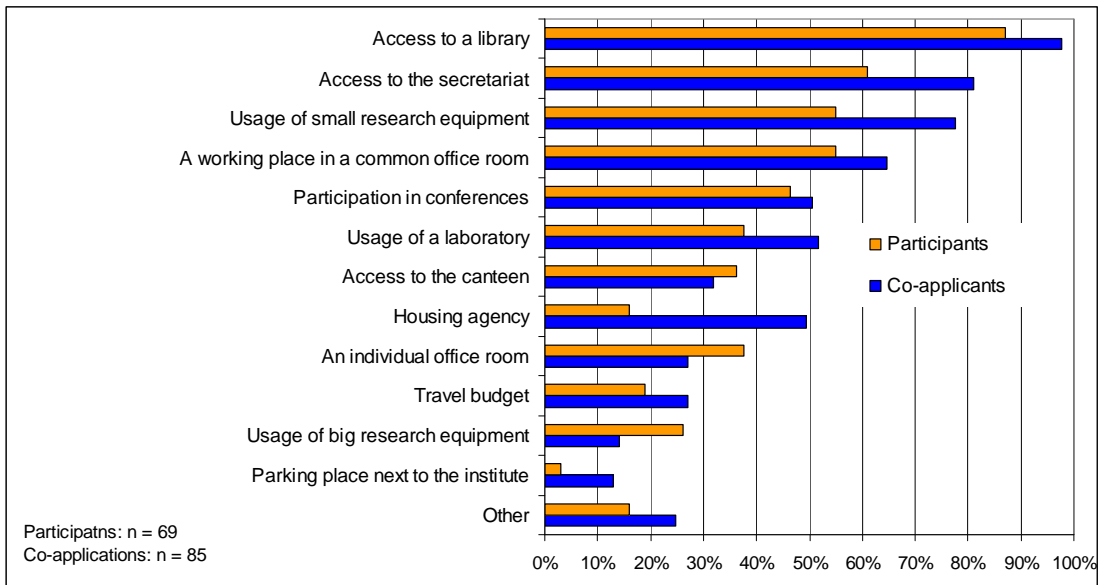
Exhibit 4-13 Activities the grant holder was involved in during her/his stay in Austria



Source: Technopolis survey

When it comes to support in-kind received from the institute (Exhibit 4-14), co-applicants tend to have a more generous view than the grant-holders themselves, but they agree mostly in the ranking. This difference may be interpreted either as the blindness of several heads of institute, believing that working conditions are better than they are in reality, or as a different interpretation, with co-applicants indicating the in-kind support that was available, and participants only mentioning support they effectively made use of. In either case, the picture shows a relatively high rate of in-kind support. More than half of the participants had access to small research equipment while more than a third could use big research equipment.

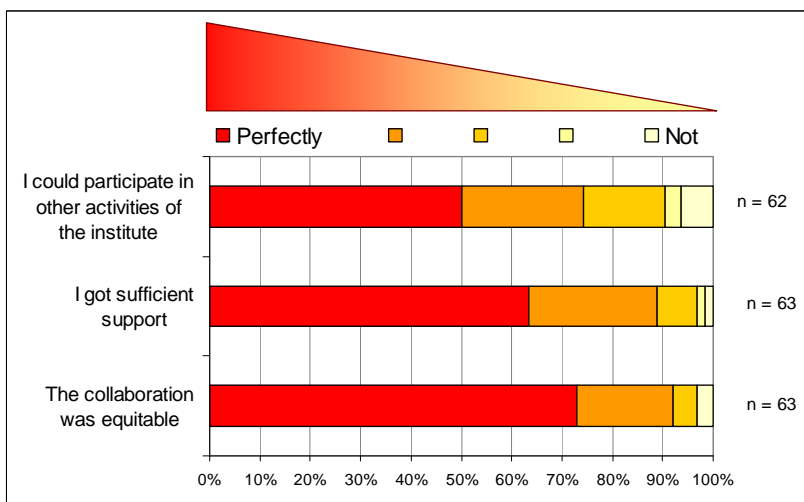
Exhibit 4-14 Support in-kind received from the institute



Source: Technopolis survey

To conclude this section, the participants have been invited to evaluate the collaboration with the co-applicant in answering the question “*How did the collaboration with your co-applicant work?*” Exhibit 4-15 shows the results: according to a 5 points scale going from “perfectly” to “not”, it can be seen that more than 70% felt that they had a perfectly equitable collaboration, nearly 90% give the first rank to the question of whether they got sufficient support, and half of the respondents commented that they could fully participate in other activities of the institute.

Exhibit 4-15 Appreciation of the collaboration by the participant



Source: Technopolis survey

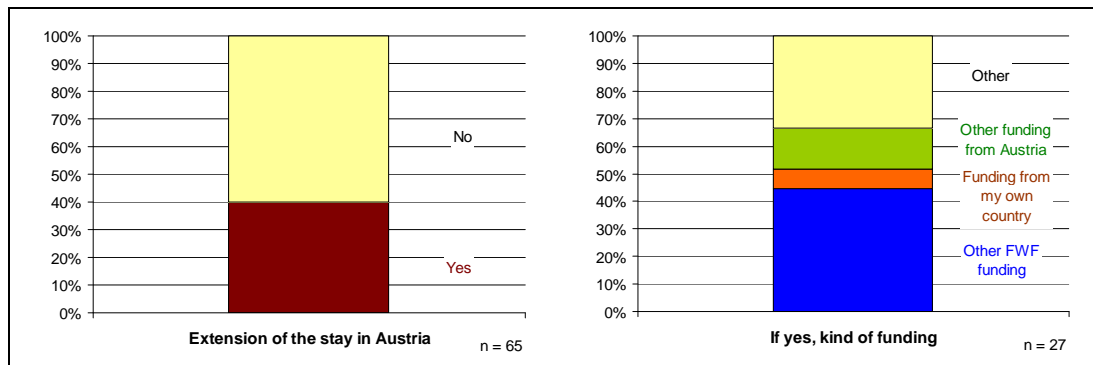
4.6 Mobility and long-term integration

Financing foreign high-level researchers during their post-doctoral phase can be a strategy to attract them for a longer period. As for Schrödinger fellows, who “risk” staying abroad, this holds for Meitner fellows, who may stay in Austria, either just in

extending their research stay for a certain period, or by installing them definitely in Austria.

A high proportion of Lise-Meitner fellows extended their stay in Austria beyond the 12 months financed by the grant, the majority with further Austrian funding, mostly again from the FWF (see Exhibit 4-16).

Exhibit 4-16 Extension of the stay in Austria after the period of Lise-Meitner funding, Lise-Meitner participants



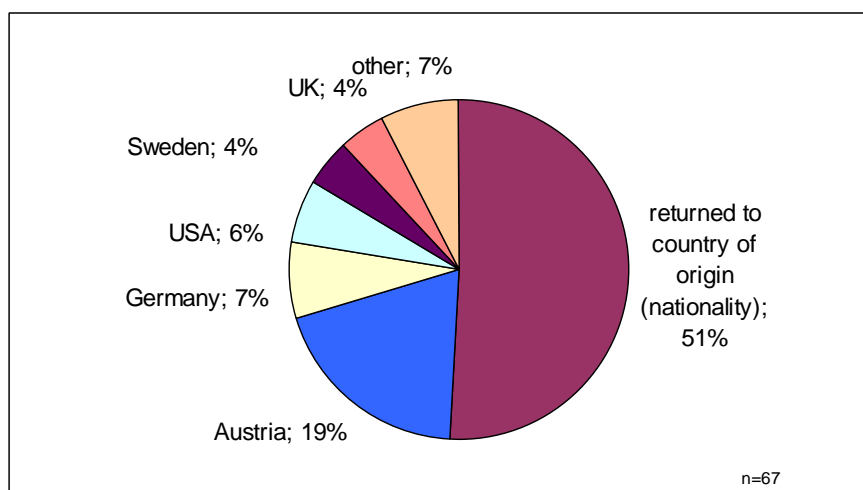
Source: Technopolis survey

Similar results were reported by the co-applicants: 37 of their Lise-Meitner participants extended their stay with other funding, every second of these with funding from the FWF.

22 of 53 responding former participants say that they stayed in the institute immediately after the end of the Lise-Meitner funding; only one more person stayed in Austria in another institute. 25 got a new job in a third country, the others returned back home.

In the long run, only 51% of Lise-Meitner fellows returned to their country of origin, while 19% stayed in Austria.

Exhibit 4-17 Present working places of (former) Lise-Meitner fellows



Source: Technopolis survey

The persons presently working in Austria are not all the same as those who extended their stay immediately after the end of the grant: in 4 cases, the grant is still ongoing; others first of all went back to their former position or waited for an FWF grant. Out of those who initially stayed in Austria, 9 are now working elsewhere, 3 are still in Austria, the remaining 2 did not indicate their present working country.

These numbers show that the mobility of performing, young researchers is very high, even more so in the case of Lise-Meitner than in the case of Schrödinger fellows.

Experience overseas is a major argument for going abroad early in one's career, later on, job opportunities may offer more weight than the choice of a particular country, including the home country. Moreover, it should be emphasised that the majority of Meitner fellows come from countries that emerged from the former eastern block, where research funding is still less important than in western highly industrialized countries.

5 Administration of the programmes

5.1 Selection process and administration

Both Schrödinger and Lise-Meitner grants are allocated by the FWF Board based on an international peer review process. On average, the administration and decision making process of proposals takes about 4 months. In 2005, the electronic forwarding of proposals to peer reviewers replaced the postal system, thereby accelerating the selection process by 1 to 2 weeks. However, the duration varies considerably, as reviewers have to be found and only a limited number of Board meetings take place per year.

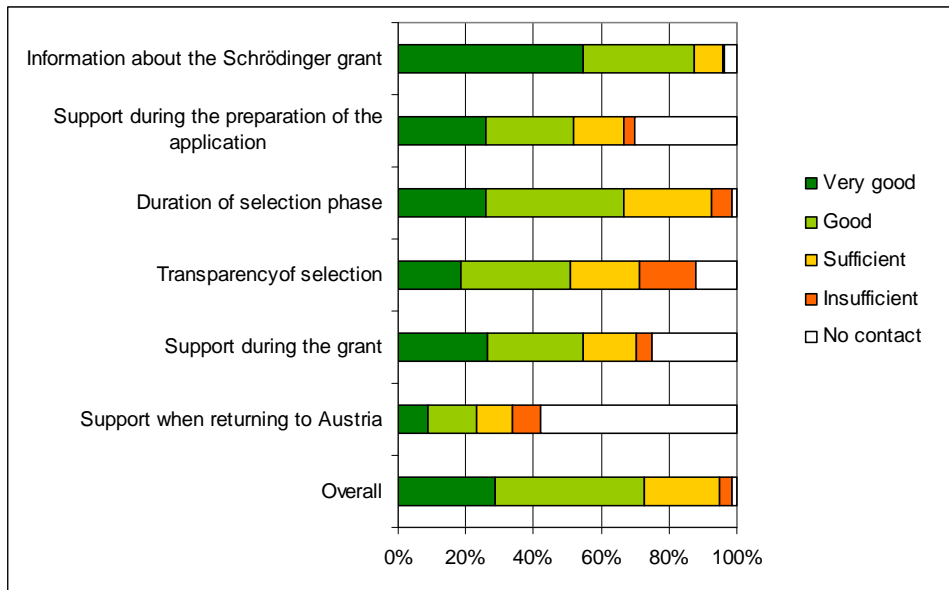
A team of 5 people in the department for mobility and women's programmes administers the two programmes. The high continuity in the administration is remarkable, as one of the team members has been involved in the administration of the Schrödinger programme since its launch in 1985.

5.2 Feed-back from the questionnaire survey

The overall evaluation of the support and administration of the Erwin Schrödinger grant shows that it is basically appreciated, only two points of critique regularly emerge: The first one concerns the transparency of selection, here 17% claim that it is insufficient. Several comments from respondents underline this problem, and they would like to have the opportunity to comment on the evaluation by peers. This problem has been partly addressed by the FWF, as the peer review protocols have been sent to the applicants since 2004, whereas prior to that they only got a very short summary. Exhibit 5-2 compares the appreciation of grant holders who started their scholarship in 2005 or 2006 and therefore already benefited from the reforms, and former grant-holders. The increased transparency is widely appreciated, whereas the grant holders' responses do not reflect any quicker selection process. However, the number of respondents is relatively low, and variations between individual applications are higher than the average gain in rapidity through electronic transfer of information.

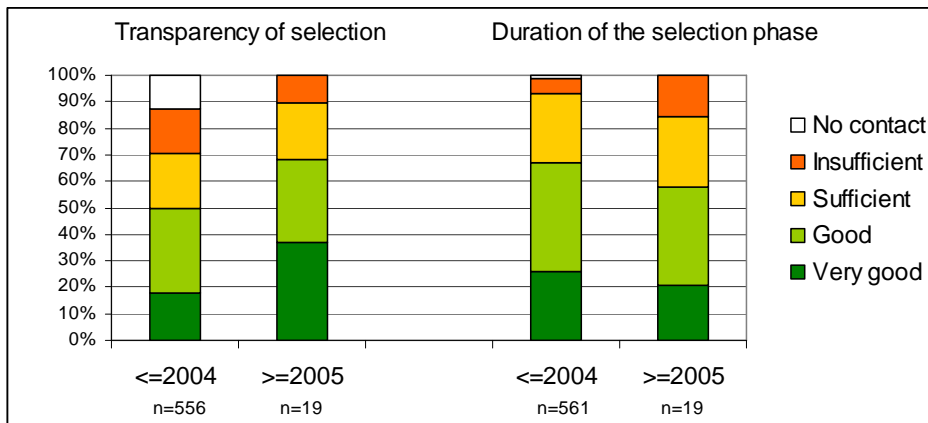
Secondly, 8% of respondents miss support when returning to Austria. This time is particularly difficult for Schrödinger fellows as they feel very frustrated in their enthusiasm, often not shared by their Austrian colleagues. Some miss for instance the opportunity to present their work in Austria.

Exhibit 5-1 Evaluation of the support and administration of the Erwin Schrödinger grant



Source: Technopolis survey

Exhibit 5-2 Evaluation of transparency and duration of the selection, Erwin Schrödinger grant, starting year before 2005 and onwards



Source: Technopolis survey

Statistical tests showed significant differences according to the research domain in the appreciation of two aspects of administration and support. Firstly, concerning the information about the Schrödinger grant: biologists and social scientists feel particularly well informed, whereas satisfaction is lower within researchers in natural, medical sciences, as well as humanities.

Secondly, the support during the grant is basically approved by at least 70% (very good or good) of respondents of all domains but in the field of humanities 10% of those having contact feel that it is insufficient and other 28% evaluate it as sufficient, but not more.

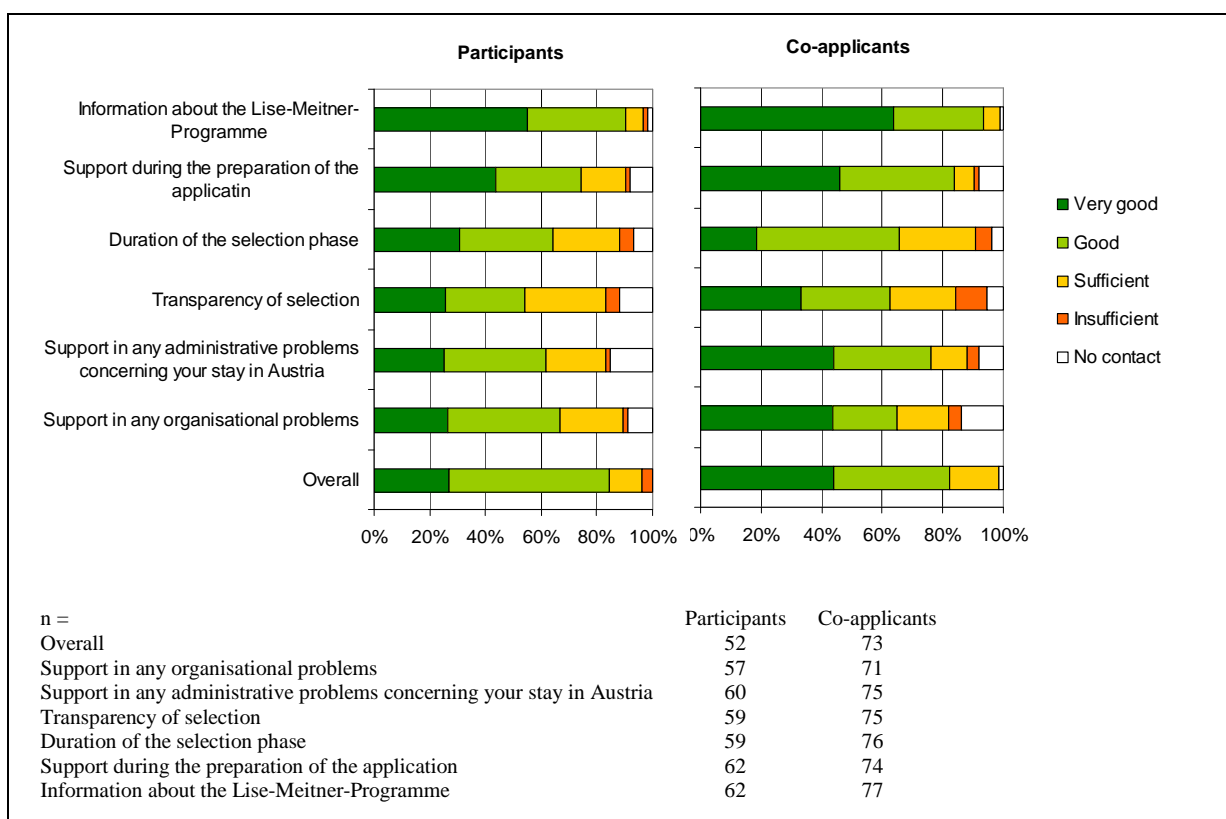
Besides the support of the FWF, Austrian citizens abroad may also use the support of the Austrian embassy: 80% of respondents say that this was not necessary, 11%

received such support as far as there was a need, while the remaining 9% would have liked to get such support.

Networks of Austrians abroad have been frequented by 27% of respondents.

The co-applicants of Lise-Meitner fellows show to be more satisfied with the administration than the Lise-Meitner grant holders themselves, with the exception of 10% criticizing insufficient transparency in the selection. However, it needs to be emphasised that administration is noted as at least sufficient by a minimum of 80% of respondents, and as good by more than the half of them.

Exhibit 5-3 Evaluation of the support and administration of the Lise-Meitner grant, co-applicants



Source: Technopolis survey

In the case of Lise Meitner grants, Exhibit 5-3 shows that applicants tend to be more critical than co-applicants, even if the overall appreciation is positive, as more than 80% think that the administration is very good or good. Information about the programme and support during the preparation phase are very well appreciated, the only points of critique once more come in relation to the transparency of selection, and the duration of the selection phase, even if here again, more than the half of grant holders and co-applicants that have been in contact with the FWF in this respect think that these aspects are good or even very good.

6 Conclusion

In conclusion, both the Schrödinger and the Lise-Meitner programmes are globally well performing programmes. The main results of this evaluation are related to the key evaluation criteria, which are relevance, coherence, efficiency, and effectiveness and recommendations concerning the adaptation of the programmes are presented.

Relevance relates to the relationship between programme goals and, overall, societal issues the programme refers to, and is therefore closely linked to the programme design. Most generally, the Schrödinger programme, which provides grants for young post-docs for a 10 to 24 month stay abroad, can be seen as being at the forefront of support programmes, as since its launch, the issue of mobility has considerably gained in importance. However, the results of the survey indicate that the programme fits differently to the various research disciplines:

- Firstly, the researchers' objectives related to the grant differ according to the domain they are working in: On the one hand, medical researchers have a specifically high need for specialisation and the acquisition of new methodologies and techniques in top-institutes, which probably explains the outstanding attractiveness of the programme for researchers in this domain, and the high proportion of grants they hold. On the other hand, for researchers in social sciences and humanities, the achievement of a postdoctoral lecture qualification is most important, as well as networking. This indicates that from the point of view of the researchers – for whom “experience abroad” is the most common objective – the Schrödinger programme represents an important opportunity in achieving the individual competence profile they need to acquire if they want to succeed, notably because it provides a period free of any other constraints or work obligations.
- Secondly, the duration of the grant is perceived differently according to the research domain. Notably biologists and natural scientists underline that even the duration of 2 years is insufficient to realise a research project in a foreign institution, especially when they are involved in experiments.

In the case of the Lise-Meitner programme, which provides funds for researchers from abroad for a longer stay in an Austrian research institution, the design had to be adapted several times before it achieved its current formation. The maximum duration has been increased from 1 to 2 years²⁵, the way of financing has been turned from a scholarship to employment in the institute, and the funding per year has been increased in order to attract those researchers that the programme intended to, namely high level researchers that can provide an effective value added to the hosting institute, and the Austrian scientific community more generally. Whereas initially, the programme predominantly attracted researchers from transition countries (former Soviet-Union and Central-Eastern-Europe), since these reforms, researchers increasingly come from western European countries, as well as third countries. This indicates that over time the researchers' perspective of getting financing in a precarious working situation has become less important.

²⁵ After approval of an application for prolongation

Coherence questions the positioning of the programme, within the FWF on the one hand, and in the Austrian or European funding-landscape on the other. The FWF's aim is indeed to accompany the researchers in their career development; programmes are designed not to overlap, but to complement each other. In the case of the Schrödinger programme, for several years, a return grant ("Schrödinger Rückkehr-Programm") was available for former Schrödinger fellows in order to finance the adaptation of their research project to their work situation in the Austrian context. This programme was abandoned in 2005, when the eligibility rules for individual research projects were adapted, allowing applications by Schrödinger fellows during their stay abroad. Survey results show that 39% of former Schrödinger fellows later received further FWF-funding, and nearly the half of Lise-Meitner fellows who extended their stay in Austria also benefited from further funding from the FWF.

On a budgetary level, the separated budgets of the FWF, linking specific programme types to specific funding sources, and therefore ministries, turned out to be a disadvantage for mobility programmes, as the sudden decline in "Sondermittel" (extra-budgetary funds) attributed by the BMBWK led to a cut in funding of mobility. In 2004, acceptance rates considerably fell in the Schrödinger programme, despite a global budget increase of the FWF, and a political declaration in favour of mobility grants.

Concerning the positioning of the FWF-mobility programmes in the Austrian funding portfolio, some overlapping can be observed, mainly with post-doc grants of the Austrian Academy of Sciences. However, no other programme has exactly the same orientation, combining both openness to any scientific discipline, as well as to the country of destination, but restricting funding to research stays abroad (Schrödinger), or researchers that have not spent more than 6 years in Austria before their application for the grant (Lise Meitner) respectively.

Efficiency looks at the input-output relationship, covering both budgets and administration. In this respect, the initially very high acceptance rates, of around 60 to 70% has to be mentioned, falling below 50% in 2004, when budgets were cut. This implies a more severe selection process, in a situation where both interview partners and survey results indicate a high performance of former grant holders in terms of scientific output and career paths, and therefore no efficiency problem.

Concerning the administration of the programmes, overall satisfaction of grant holders and co-applicants of Lise-Meitner fellows is positive or very positive, with two points of weaknesses, namely the transparency of the selection process, and the duration of the selection phase. Whereas recent reforms resulted in an increase in the satisfaction concerning the transparency of selection (as major parts of the reviewers report is now sent to the applicants), the duration of the selection process, varying considerably from one application to another, is still a problem for some of the applicants.

Comments from former grant-holders indicate a lack of support after the grant, and they would like to see more networking activities for Schrödinger or Lise-Meitner alumni.

Selection rates of up to 70% seem defensible due to the good performance of former grant holders, as indicated by the results of the three online-surveys conducted for this evaluation, showing a high *effectiveness*:

- The career paths of former Schrödinger grant-holders confirm what is indicated by individual discourse. More than 50% of those researchers that have received a Schrödinger grant at least 15 years ago have become full professors since then. The proportion lies above 30% for former fellows that have been financed in the following five years, and still lies at 20% within fellows from the years 1997-2000.
- 59% of Schrödinger fellows estimate that the grant has been very valuable in achieving their present position; it has been helpful for other 21%.
- The number of publications in reviewed journals related to the research financed by the grant is 4,2 for Schrödinger fellows, and 4,6 for Lise-Meitner fellows and members of the hosting institute respectively, and therefore lies at about the same level as for project based funding by the FWF.
- The vast majority (88%) of Schrödinger fellows are still in contact with the persons they worked with while abroad, mainly by meeting in conferences, but also through regular visits to the institute (29%), collaboration on common projects (24%) and common publications (34%).
- In the case of Lise-Meitner grants, nearly half of the respondents within Austrian co-applicants state having used a new methodology or technique thanks to the stay of the Lise-Meitner fellow, for 42%, a new research area has been opened, for other 45% this has partly been the case. For more than half of the respondents, the objective of international networking for the institute is entirely achieved.

These results indicate that the objectives have all been achieved – if there was not the problem of those researchers for whom the Schrödinger grant has not only been a trampoline for their career, but more specifically, a trampoline for their career abroad.

Leave and let leave...

A key issue in mobility is the perceived problem of high-level researchers that leave the country that has invested so much in their know-how. If more than a quarter of former Schrödinger grant holder stay or go abroad in the long run, is this to be interpreted as success or failure of the programme? This question links back to the criterion of relevance, as on the one hand, any national programme should most evidently maximise the (national) benefit of the knowledge transfer realised through a mobility grant. On the other hand, in an international environment, and for a small open economy, the ideal-typical model of leaving an institute where a specific method, technique or research orientation is missing, to work for a while in a top institute providing these qualities, in order to simply integrate them in the Austrian institute afterwards does not work. Very often, those who return to their former institute face difficulties in respect of continuing the research project launched during the Schrödinger stay. Very often, the qualification resulting from the Schrödinger grant allows them to apply for a higher position that is not vacant in their former institute, but which is elsewhere, maybe abroad.

Very often, high level researchers are happy to candidate for an Austrian professorship, after a first career abroad. This suggests, that long-term international mobility is primarily explained by the internationalisation of career paths due to global competition in research jobs, and not to any propensity to move which might be enforced by a mobility grant. Mobility grants are in this sense a helpful tool to become part of the global scientific community, but are far from being the only one, as post-graduate courses or local research experience may also provide the necessary qualification. A comparison of qualification paths of high level Austrian researchers working abroad could provide more insight to this question.

In any case, the comparison of the Schrödinger programme with the Lise-Meitner and the Marie-Curie programmes shows that return rates are highest in the case of Schrödinger (71%), and lowest in the case of Lise-Meitner (51%).

Further development

Room for improvement can be identified in three respects:

- Firstly, a differentiation of the length of both grants should be considered, in response to subject dependent needs. For example, an approach of co-financing with the hosting institute for extensions beyond two years could be considered.
- Secondly, more emphasis should be put on supporting Schrödinger fellows immediately after the end of the grant: for some of them, this is a critical time, for instance during which they would need a forum to present their work. For Lise-Meitner grant holders, an effort in keeping contact through an alumni club or an Internet portal (such as the Schrödinger portal) could further increase long term relations.
- Finally, against the background of the good performance of both programmes, more flexible budget attribution within the FWF budget should ensure that funding for individual grants can be continuously assigned according to demand, especially when global budgets are theoretically available.

7 Information sources

7.1 References

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7.2 Interviews

- Barbara Zimmermann, FWF
- Robert Gass, FWF
- Susanne Menschik, FWF
- Christoph Ramoser, BMBWK

- Karin Müller, PROVISIO
- Arnold Schmidt, Technical University Vienna, former President of the FWF
- Simone Mesner, Austrian Council for Research and Technology Development

Appendix A Current place of work of former Marie-Curie grant holders

| Cat. 30 Marie Curie fellows only | Current place of work↓ | | | | | | |
|---|---|-----------------------------------|---|---|--|---------|-------|
| Host type ↓ | At an institution worked at prior to the Marie Curie fellowship | At the Marie Curie host institute | A different institution in home country | A different institution in the host country | A different institution in another country | Total % | Total |
| University | 29% | 19% | 29% | 9% | 14% | 100% | 585 |
| Public / private research centre | 30% | 22% | 30% | 7% | 12% | 100% | 291 |
| Large Industry / SME | 8% | 47% | 18% | 8% | 18% | 100% | 49 |
| NGO /International Organisation / Other | 21% | 21% | 32% | 12% | 15% | 100% | 34 |
| <i>All host types average %</i> | 28% | 21% | 29% | 8% | 14% | 100% | 959 |

Source: IMPAFEL fellows questionnaire