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Evaluation of Finland Distinguished Professor (FiDiPro) Programme

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Tekes

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Evaluation Report

owalgroup

Tekes

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Tekes – the Finnish Funding Agency for Innovation

Tekes is the main public funding organisation for research, development and innovation in Finland. Tekes funds wide-ranging innovation activities in research communities, industry and service sectors and especially promotes cooperative and risk-intensive projects. Tekes' current strategy puts strong emphasis on growth seeking SMEs.

Tekes programmes – Tekes´ choices for the greatest impact of R&D funding

Tekes uses programmes to allocate its financing, networking and expert services to areas that are important for business and society. Tekes programmes have been contributing to changes in the Finnish innovation environment over twenty years.

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Foreword

FiDiPro – the Finland Distinguished Professor Programme is intended to provide Finnish universities and research institutes with the opportunity to employ distinguished professor-level scientist. The FiDiPro professors and fellows have been recruited from all around the world for a fixed term (2–5 years) to contribute to the advancement of scientific research in Finland.

Between 2006 and 2013, there have been 92 FiDiPro professors and 14 FiDiPro fellows. About half of them have been funded by the Academy of Finland and half by Tekes. FiDiPro researchers work in wide variety of scientific disciplines. Their research projects cover mathematics, linguistics, physics, biochemistry, forestry as well as Baltic Sea research. Computer science and history are also represented in the projects.

The FiDiPro funding programme has now been evaluated by Owal Group Oy. The evaluation covered relevance, efficiency and effectiveness of FiDiPro. The benchmarking of similar type of instruments in some leading countries was also made. Tekes wants to thank the evaluation team: Mikko Wennberg, Olli Oosi and Mia Toivanen for their comprehensive and analytical approach. Tekes expresses its gratitude all those involved in steering group, interviews, surveys and a discussion forum. The results signal good success sofar and great potential for the future impact.

October 2014,

Tekes

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Introduction

FiDiPro funding has been available since 2006, and the first professors to benefit under the programme came to Finland in 2007. This is the first evaluation of the funding programme. The evaluation focuses on the questions of relevance, efficiency and effectiveness: Is it still needed, is it implemented well, and is it showing progress towards the expected outcomes?

EVALUATION QUESTION

The FiDiPro programme is a shared funding initiative of Tekes and the Academy of Finland, which is aimed at creating long-term international cooperation. In order to fulfil this goal, the programme offers grants covering a FiDiPro professor's or fellow's salary and travel expenses, research costs and related expenses of accompanying family members. FiDiPro professors can also bring with them key members of their own research team, whose expenses may be partially covered.

The internationalisation of Finnish science as a result of the FiDiPro assignment can be seen as a multidimensional goal. The effects of the assignment can include, for example, increased international mobility of researchers, continued co-operation between home and host universities even after the assignment has finished, better and more wide-spread publications, and novel international business opportunities for Finnish companies.

Keeping in mind the key goal of the programme, this evaluation was designed to answer the following questions:

I RELEVANCE: The extent to which the FiDiPro programme addresses a demonstrated need and is appropriate to the strategic priorities in the area of science and technology.

1. Is there a continued need for targeted funding aimed at attracting more International top-level researchers to Finland?
2. What is the added value of FiDiPro funding in the suite of research funding instruments?
3. What is the role of the FiDiPro funding in relation to strategic priorities in the area of science and technology?

II EFFICIENCY: Selection process, administrative practices and resource utilisation in relation to the progress towards expected outcomes.

1. To what extent do the applied evaluation criteria and practices support the goals of the programme?
2. Are the rules and procedures of the programme clear and easy to understand?
3. Does the FiDiPro programme provide the needed support to FiDiPros and host universities?
4. Can the efficiency of the programme be improved (i.e. can the same level of programme outputs be achieved in a more affordable manner)?

III EFFECTIVENESS: The extent to which the programme is achieving or demonstrating progress towards achieving expected outcomes.

1. How has FiDiPro funding contributed to host universities research work in Finland?
2. To what extent has the FiDiPro programme facilitated long-term international collaboration?
3. To what extent has the FiDiPro programme enabled the transfer of new methods/ knowledge/ technology and expertise to Finland?

4. To what extent has the FiDiPro programme fostered increased participation of companies and/or government organisations in academic research?
5. What could be done to make the FiDiPro programme more attractive to potential partners?

METHODS AND SOURCES OF INFORMATION

The FiDiPro programme involves multiple stakeholders and has different direct and wider impacts for them. To answer the evaluation questions, a mixed method approach was chosen. Five types of information sources were selected:

1. Literature review
2. Interviews with FiDiPro professors and fellows
3. Interviews with key stakeholders and partners
4. Survey to host universities
5. Bibliometrics.

These information channels are described in more depth below.

Literature review

A literature review was carried out based on national and international literature. National literature consisted of a review of the evaluation relating to Finnish science or other evaluations. The international literature analysis was based on searches from Google Scholar and digital academic information sources, such as ScienceDirect and Wiley Online Library, with keywords relating to the mobility of researchers, the internationalisation of research and attracting top-level scientists. The review also included an analysis based on MORE2-project data (a European research project on Mobility patterns of researchers) and European Commission Erawatch country reports. Case studies consisted of Internet material, Erawatch reports and specific evaluations of the instruments when available.

Interviews with FiDiPro professors and fellows

All FiDiPro professors and fellows were contacted (or contact was attempted) for personal interview. Hence, both on-going projects and already finished projects were included. The purpose of the interviews was to gather detailed information on their personal experiences and views about the FiDiPro years as a part of their research career. The interviews also shed interesting light on if they still had connections to the host university and, if so, what actions they have continued with at the host university after the FiDiPro programme. In total, 66 interviews were conducted.

Interviews with key stakeholders and partners

Semi-structured interviews were conducted with key stakeholders of the programme. This included strategic and operative management of the programme at the Academy of Finland and at Tekes as well as partner organisations of FiDiPro research projects (e.g. representatives of the companies involved in the projects).

Survey to host universities

Web-based surveys were administered at host universities. The survey was sent to responsible project leaders (in total 107 recipients). The response rate was 49 per cent (52 answers).

Bibliometrics

During the evaluation an experimental bibliometric analysis of most FiDiPros and Finnish co-authors (N=602) was carried out. The analysis looked at publication activity and the number of citations.

However, more detailed analysis of publication impact or quality of the journals the publications were published in was not included due to data availability. Data was gathered manually through the Scopus database and a small error margin exists for individual FiDiPros as not all the journals are covered in Scopus. Some small errors may also occur depending on the efficiency of Scopus' author identification system.

FiDiPro in the International Context

This section will give an overview of the FiDiPro programme and look at the FiDiPro programme in the wider international context of researcher mobility. The FiDiPro programme is benchmarked against four similar types of programmes from different countries.

OVERVIEW OF THE PROGRAMME

FiDiPro, the Finland Distinguished Professor Programme, provides Finnish universities and research institutes with an opportunity to employ distinguished professor-level scientists from all around the world for a fixed term to carry out research and contribute to the advancement of scientific research. The programme aims to create novel international collaboration among the spheres of basic and applied research, as well as with the R&D functions of companies. Thus, wide-ranging collaboration between universities, research institutes and companies is highly encouraged by the programme.

Types of FiDiPro Funding and Applying

The FiDiPro programme is organised and funded by two Finnish organisations: the Finnish Funding Agency for Innovation (Tekes) and the Academy of Finland. The organisations have their own distinguished application practises. Common to both, the applicant has to be a university or research institute; the distinguished professor cannot apply for the funding himself or herself. Further, funding is always granted to a certain research initiative. By receiving the funding the research institution or university in question can then cover the pay and travel expenses of the top-level researcher, as well as other costs related to the research initiative. The application process is two-phased, in which the actual applicants are selected on the basis of first-phase intention letters.

There are two types of funding available. FiDiPro Professor funding is available through both Tekes and the Academy of Finland, while FiDiPro Fellow funding is a type of grant available only through Tekes. FiDiPro Professor funding is targeted to attract extremely experienced top- level researchers to Finland. FiDiPro Fellow, on the other hand, is created for top-level researchers who have exceeded the so-called post doc time (3–4 years after completing a doctoral dissertation). FiDiPro professors cover a variety of disciplines, from linguistics to maths, physics, biochemistry and other natural sciences. FiDiPro Professor funding has been available since 2006, and the first professors under the programme came to Finland in 2007. The FiDiPro Fellow programme is slightly newer; the first grants were distributed during 2009.

In accordance with the target of encouraging international collaboration, the FiDiPro professor is also allowed to bring his/her own research team or its member(s) to participate in the research initiative in Finland. The members' expenses can also be partly covered by FiDiPro funding. Also, in exchange for bringing foreign researchers to Finland, Finnish researchers can be sent to work abroad in the home university for a given time.

The programme sets ground rules for the professors and research initiatives granted with the funding. Under the rules of Tekes, for example, FiDiPro professors and researchers are expected to work for at least four months in a year in Finland and altogether (at least) 12 months during the entire length of the research initiative. The researcher has to be present and working in person: substitute researchers or telecommuting is not permitted.

The presence of the professor is also a key basis for the funding, thus, making it highly monitored. If the researcher

fails to fulfil the requirements set for presence, the FiDiPro funding can be fully retracted. Like Tekes, the Academy of Finland gives funding for two to five years, of which the researcher has to be present at least half of the time. The FiDiPro professor has a normal employment agreement with the employing institution.

Evaluation Criteria for Selected Research

Tekes evaluates the research initiatives it selects to be funded on the basis of the likely research impacts.

New innovations and know-how, novel collaborations, the impacts of the funding and the welfare aspects being promoted by the research initiative are, among other things, important aspects to be considered in granting the funding. Further, the level of the researcher, the resources and competence of the host university, the research initiative's correspondence with Tekes' strategic focus areas and the influence of the initiative from the point of view of business and companies, also matter in selecting researcher initiatives. Tekes' programmes highlight the importance of finding novel solutions to fulfil the need of the business sector as well.

The Academy of Finland has similar criteria for determining the allocation of its funding. Instead of the business sector directly, however, the Academy of Finland puts emphasis on the significance that the proposed initiative might have on Finnish research and its breakthroughs. The level of the acquired researcher, the scientific quality and innovativeness of the research plan, the collaboration strings built by the initiative and the significance of the research initiative on encouraging professional research careers, are variables of particular interest for the Academy of Finland. Moreover, the risk of failure in the research is considered. The Academy aims to provide chances for scientific breakthroughs in somewhat risky projects that, due to the risks, would otherwise not be actualised.

Development of the Programme and Funding

At its maximum, the granted funding can usually cover 70 per cent of the full costs of the research initiative. Also, Tekes states that a funding from the business sector in the initiatives by the amount of (at least) 5 per cent is also being pursued in every initiative. By the beginning of 2014, funding from the Academy of Finland had enabled the visits of altogether 48 FiDiPro professors. Tekes, on the other hand, had granted funding for 52 FiDiPro professors and 14 FiDiPro fellows.

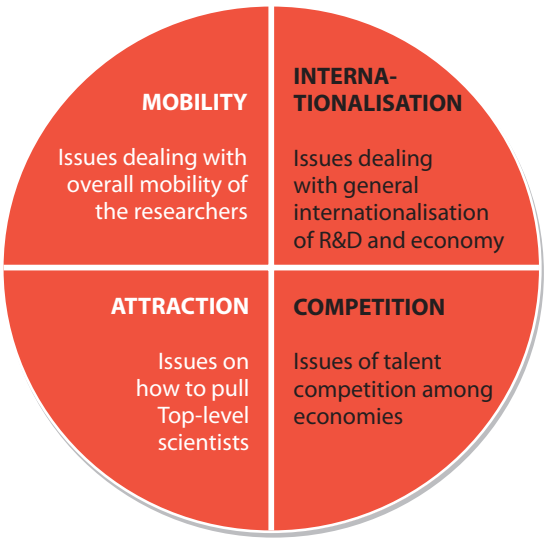
The amount of funding varies according to the nature of the research initiative. For example, the first 24 funded research initiatives at the beginning of 2007 received total funding of EUR 17.5 million.

FIDIPRO IN THE INTERNATIONAL CONTEXT

Introduction

Despite the relative "urgency" and the amount of discussion around the international mobility of researchers, relatively little is known about many of the issues FiDiPro is facing. The programme can be looked upon from various aspects to identify issues that are relevant in the operative environment. These perspectives are described in the following Figure 1. We will look at the operative environment in terms of mobility and internationalisation and attraction and competition.

Figure 1. Perspectives on the Operative Environment.



Mobility and internationalisation

Most of the research in the area of FiDiPros deals with the issues of the mobility of researchers and factors influencing mobility. In many cases, our international scoping has revealed that most international instruments deal with mobility issues.

What is important in these instruments is both the "pull" and "push" functions of such instruments.

For several years the concept of "brain drain" has dominated the discussion and interpretation of the phenomenon. This has led to the classification of "winning countries" and "losing countries" (Bhagwati and Hamada, 1974). The strategies have focused on limiting the phenomenon and introducing economic incentives to return. This means that in the strategies there has been a strong focus on "return" in the instruments dealing with internationalisation (Bhagwati and Partington, 1976; Dustmann and Weiss, 2007; Lowell, 2002).

Despite all the discussion around mobility, migration patterns of top scientists as a specific group have not been consistently tracked in the large mobility studies, a complete picture of the inflow of top international scientists to the EU or Finland or their outflow to third countries is not currently available (EP 2013).

The general view is that the mobility of top scientists works in the main to the advantage of the USA (Laudel 2005) and migration to the USA appeared to occur less often when scientists were already members of the scientific elite. The spatial distribution and mobility patterns of top scientists are highly uneven. The USA dominates as a destination for top scientists as two-thirds of all highly-cited researchers in the study sample were located in the USA. The share of Western European countries was just 22.5 per cent (Maier & Al.).

Compared with the USA, the European top centres perform less well specifically when it comes to attracting top foreign scientists but are highly successful in luring back returning scientists (Trippl 2011 and EP 2013). This can be seen in the international scoping exercise, where many instruments have a strong focus on the "return" of researchers who are working abroad.

Attraction and competition

How to attract international researchers is an intertwined theme with researcher mobility. What attracts researchers to international mobility has been constantly under discussion. Typical conditions most highly sought by academics in top institutions are: better research opportunities, higher salaries and promotions (Bergman 2011). Qualitative data and sample interviews with top level scientists have previously indicated that the main factors relating to their choice of work were those relating to the nature of the research environment and research funding. The other factors examined, such as those relating to personal quality of life and other issues, were considered in most cases to be either secondary or not important at all (EP 2013, 31-35).

Attraction and competition and the notion of "brain circulation" have more recently come to the fore in discussing research networks and public instruments dealing with researchers. This notion departs from the "migration" type of mobility studies and analyses also other types of factors, which are relevant especially for highly-skilled researchers or even "top-level" scientists (Ackers, 2005; Saxenian, 2005).

The so-called "Attractiveness Factors" (AFs) have been the focus of these studies. The MORE2 project, carried out for the European Commission, focused on these factors. The surveys carried out in the project shed light on the reasons for and characteristics behind mobility, including following factors:

- Access to the facilities / equipment necessary for the research
- Availability of suitable research collaborators
- Industry linkages and links with companies and users of research
- General availability and level of research funding at the national level
- Ability to access funding for one's own research
- Availability of career opportunities
- Salary and incentives
- Working conditions
- Pension and social care provision
- Attractive labour regulations (e.g. working week, health and safety laws)
- Immigration regulations.

Other studies, such as the European Parliament study, used a similar but more concise set of factors, including

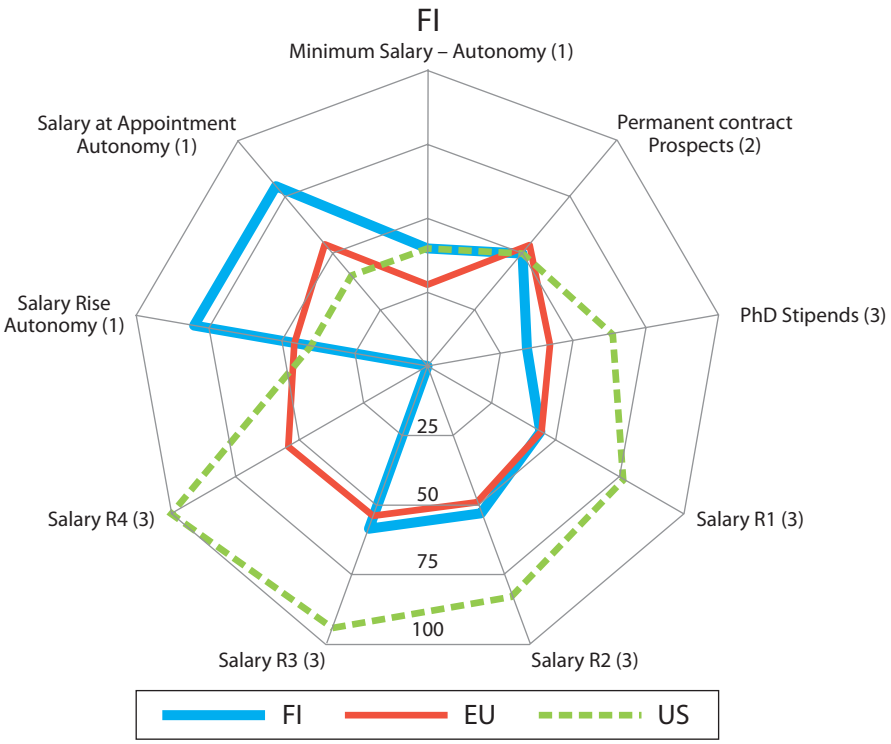
- Institutional factors relating to the research environment: Quality of the research environment (people, facilities and resources) and institutional reputation of the host institution (e.g. international ranking); Availability of suitable research collaborators (including innovation ecosystem, social capital and network capacity);
- Institutional factors relating to funding: General availability and level of research funding nationally; Ability to access funding for one's own research;

- Personal factors, such as personal incentives and remuneration: Salary and incentives; Working conditions; Pension and social care provision; Attractive labour regulations (e.g. working week, health and safety laws);
- Quality of life factors: e.g. Climate, Safety/security (low crime rate), quality of public services (healthcare, childcare);
- Other factors: issues that impact on mobility, in most cases bottlenecks or hindrances, such as administrative obstacles (recruitment practices, visa policies, immigration regulations, etc.), as well as cultural and linguistic factors (e.g. familiarity with language, cultural skills).

Based on these factors they identified the following weakness in Europe:

- Brain drain caused by financing and wage level
- Lack of tenure track systems
- Budgetary cuts in R&D spending
- High level of taxation
- Some cases of language policy restricting attractiveness (Greece, Germany)
- Risk of potentially severe vicious cycle: those who are lagging behind in attractiveness may have difficulties to increase their attractiveness in the recession.

Figure 2. Attractiveness Factors.



Source: MORE II expert survey; Spokes are normalised minimum = 0, and maximum = 100% in case of "PhD-Stipends" and "Salaries R1-R4", maximum = R1 in case of "Permanent contract", and maximum = 5 in case of "Salary rise", "Salary at appointment", and "Minimum salary". Missing values are set to zero.

- Degree of autonomy: "Salary rise", "Salary at appointment", and "Minimum salary" based on question: "Please indicate the institutional level at which the following aspects of public university researchers are determined?" Scale: (1) National, (2) Regional (state), (3) Sector/collective agreements, (4) University, (5) Individual negotiation, (0) missing value;
- Prospect of a "permanent contract" shows the lowest career stage (R1-R4) at which university researchers can obtain permanent contracts.
- Salaries: "PhD Stipends", "Salaries R1-R4" show gross annual salaries (in PPP €) paid in the country as a percentage of the best paying country at this career stage.

It should also be noted that when there are fewer resources available for developing basic infrastructure, even less is available for achieving the competitive advantage required (exceptions Portugal and Estonia).

It is noted by these studies that many of these challenges apply also to the Finnish operative environment (EP 2013 and MORE2 final report as well as country profile of MORE study where Finland is facing challenges especially in terms of remuneration). In this light, as noted in other parts of this report, FiDiPro provides a possibility to change and provide an alternative standpoint for remuneration.

Overview of policy measures

Various countries have used different types of instrumentation to deal with the mobility and attraction aspects. Former studies outline general policies in relation to attracting top-level scientists and increasing the mobility of researchers.

On the international level it could be stated that in many cases the United States competes with the research infrastructure and legislation. Canada has developed specific instruments for increasing internationalisation, which have been a starting point for the FiDiPro instrument. China has chosen a strategy of sending out and trying to get back, and many other countries are currently developing strategies to increase internationalisation and mobility. South Africa is one example where a similar instrument is now utilised.

On the European level, policies have been developed since the beginning of the 2000s with a view to raising the policy centrality of attractiveness and research mobility in Europe. In addition to funding instruments and support services, the EU has also sought to enhance working conditions and career opportunities by promoting a uniform set of rules and practices across the Member States (European Charter for Researchers and a Code of Conduct for the Recruitment of Researchers, Scientific Visa Package in 2005 and specific ERA initiatives under FPs).

One specific instrument under FP7 was the introduction of the ERC. ERC - Advanced Grants are given to established research leaders of any nationality and any age to develop innovative, high-risk projects. The researchers can be of any nationality and age. The main evaluation criterion is scientific excellence and the overall funding per grant is EUR 2.5 million, while in some circumstances it may reach up to EUR 3.5 million per grant over a five-year period (ERC 2014).

On the individual state level it could be argued that there are two major approaches. First, new Member States are in the phase where they are currently drafting innovation strategies (i.e. EP 2013) while others have built up specific instruments. The EP study, which is written by Finnish authors, notes FiDiPro as a best practice.

CASE STUDIES

Introduction

With screening we have been able to identify around 26 international examples of funding instruments that support attraction, pulling and retaining high-level expertise and which are, to some extent, argued on the basis of the "internationalisation of science" (see Annex 1).

Half of the international examples tend to gear towards "researcher return" or "brain return", among other goals. This rationale is sometimes stated directly.

It is somewhat interesting to note that the focus of "return" is still prevalent in these instruments, even though recent evidence shows that, in a considerable number of cases, researchers will not return to their country of origin (Van Bouwel, 2010).

Focus on knowledge utilisation and the impact on businesses in these instruments is relatively small overall, which puts FiDiPro into a different light.

Most of the international examples are based on the post-doc level in general; the professor level or "top- level" ambition target is mentioned in 14 of the examples in the inventory. Even though it might be mentioned, the actual meaning and the results remain somewhat ambiguous.

The most similar examples are in Canada and South Africa (which is also a replica of the Canadian example).

CASE 1: Canada, Canadian Research Chairs (CRC)

Background and rationale

The Canadian Research Chairs was established in 2000 as a permanent programme by the government of Canada in the context of its national strategy to make Canada one of the world's top countries in research and development. The policy rationale underpinning the programme is to create world-class research capabilities and to build world-class research excellence in Canada in the context of international competi-

tion for highly qualified researchers and concerns about brain drains to other countries.

OECD 2013 Science, Technology and Industry Scoreboard reads: "Compared with other large OECD economies, Canada has a very high rate of international mobility of researchers, mostly with the United States. Returning researchers and new inflows tend to publish in journals with higher quality than researchers that have not engaged in international mobility."

The Erawatch country report 2012 lists the programmes Canada has developed to attract world class researchers from other countries to Canada. As well as the CRC, there is also the CERC (Canada Excellence Research Chairs) to attract leading Canadian and international scientists to Canada for long-term research with national importance. For national researchers, there is no specific policy related to mobility but many more general programmes allow researchers to move between universities.

Also in the Erawatch country report 2012, it is mentioned that "through FP7, Canada participates in mobility and training initiatives through the Marie Curie Actions International Outgoing Fellowships and International Incoming Fellowships which provide opportunities for European researchers to carry out research at a Canadian organisation, and for Canadian researchers to carry out research at a European research organisation, respectively." (Erawatch 2012a)

In the MORE2 study, it was found that Canada is the 9th most popular destination country for researchers to move to for more than three months in a post-PhD research career. It is the second most popular non-EU destination after the USA.

Description of the instrument

The objectives of the CRC programme are:

- to attract and retain excellent researchers in Canadian universities
- to improve universities' capacity to generate and apply knowledge
- to strengthen the training of highly qualified personnel
- to optimise the use of research resources through strategic planning.

The researcher who take the chairs are to improve the depth of knowledge and quality of life in Canada, strengthen its international competitiveness, and help train the next generation of highly skilled people through student supervision, teaching and the coordination of other researchers' work.

There are three main fields to which the agency chair allocation corresponds: NSERC – engineering and the natural sciences; CIHR – health sciences; SSHRC – social sciences and humanities. There are also two types of chairs, Senior, internationally recognised researchers (Tier 1 Chairs) and junior researchers who show exceptional promise (Tier 2 Chairs).

The chairs are first allocated to individual universities in a dynamic biannual process taking into account changes in research success at the institutions. The institutions must be degree-granting and Canadian. They submit a strategic research plan to demonstrate how they will use the funding to attract and retain world-class experts. The programme offers them "the opportunity to nominate outstanding researchers for senior professorships in areas that will further the institution's overall research priorities and enable them to maximise their contributions as centres of research and research training."

Chairs are then awarded to individual researchers who take up the chair on a full-time basis. The university nominates researchers to fill its allocation.

Tier 1 Chairs are tenable for seven years and renewable. For each Tier 1 Chair, the university receives $200,000 annually. Tier 2 Chairs are tenable for five years and renewable once and for each the university receives $100,000 annually.

For Tier 1 positions, the researchers must be full professor or associate professors expected to promote to the full professor level within one or two years – or equivalent if coming from the non-academic research sector. The final selection depends on criteria of quality and internationally recognised excellence. For Tier 2 positions, researchers must be at minimum assistant or associate professor or equivalent. Here their selection depends also on quality, particularly emerging excellence and demonstrated potential and research creativity. The institutional environment, commitment and fit of the proposed chair with the university's strategic research plans are also taken into account in both tiers. The selection process is based on peer review by the College of Reviewers.

The Canada Research Chairs programme invests approximately $265 million per year and the key statistics are presented in the following Table 1:

Table 1. Characteristics of the Canada Research Chairs Programme.

Total number of filled Canada Research Chair positions	1,743
Number of Tier 1 chairholders	821
Number of Tier 2 chairholders	922
Total number of chairholders recruited from outside of Canada – Expatriates (includes number recruited from the US) – International recruits (includes number recruited from the US)	278 (15.9%) 127 151
Number recruited from the US (expatriate Canadians and international)	171
Number of female chairholders	Tier 1: 134 Tier 2: 330 Total: 464 (26.6%)
Number of male chairholders	Tier 1: 687 Tier 2: 592 Total: 1,279 (73,4%)

Experiences

External audit and evaluations are available on the website, the most recent being the ten-year evaluation. Overall, the ten-year evaluation of the programme found that "the CRCP has been well implemented and continues to be relevant and effective". The latter points at the fact that the programme is unique for Canada and corresponds to the policy plans and priorities for research and innovation. The role of the Canadian government to support the creation of the knowledge-based economy is confirmed in the evaluation results.

The programme achieved its four objectives, but also led to a number of unexpected impacts, such as the "star" status associated with CRCP Chairs, which is mentioned to have potentially both positive and negative effects on chairholders and non-CRCP faculties.

In terms of efficiency, the evaluation is positive but sees a chance to increase efficiency (and still reach the same level of effectiveness). The main suggestion is "to ensure that chairholders are able to maximise the potential of their chair and to further increase the visibility and linking of chairholders." This means that different elements to conduct research need to come together in time and adequately.

In terms of design, the following suggestions are made: "the award amount, the issues posed by the current duration and single renewal of Tier 2 Chairs, the reallocation process, and aspects of the university-level implementation of the programme were identified as potential elements for review to improve the programme's effectiveness. Continued dissatisfaction with the proportion of chairs allocated across disciplines suggests an additional design element for review."

The five-year evaluation additionally mentions effects for small universities to build critical mass and the positive impacts on recruiting researchers, increasing graduate training, improvements in infrastructure, and increases in research productivity, patent applications, and inventions.

One recommendation in evaluations and a concern of stakeholders has been to increase the collaboration between chairs. Both opportunities for meetings and networks for administrative and management concerns are wanted. Currently these wishes are covered by an online database with all information on the chairs. Some universities also organise chairholder seminars for their chairs. Also, an experiment will be launched soon in which a Google+ platform will be established for female chairholders to discuss administrative and management- related issues. Further cooperation events are often limited due to budget constraints.

The government's responsibility in the programme's services is the peer review of the management of the programme as well as providing financial support and evaluation of the recruited researchers. The government also monitors regularly a random sample of institutions by asking them for proof of efforts for equality and open and transparent recruit-

ment. Services such as housing and language training are not foreseen for the researchers, but are usually taken up by universities.

The activities are more focused on collaboration and exchange than on direct employment with industries. An example of such instruments is, however, the excellence researcher programme, which is one step above the CRC and has a limited number of positions. There are also specific industry research chairs. There are three levels of chairs and the chairs are working primarily in the university but partnered with industry.

CASE 2: South Africa, South African Chairs Initiative (SARChI)

Background and rationale

In South Africa, most of the data on the mobility of researchers remains under-reported. However, the Erawatch Country report states that the SARChI initiative is an important contribution to revitalising the workforce in the universities. There are also other programmes to support the international mobility of researchers, such as ESASTAP which facilitates EU- South African mobility of researchers; and the Equipment Related Mobility Grants, which supports access of researchers to equipment that is not nationally available.

The South African Chairs Initiative (SARChI) was developed in 2006, partly inspired by Canadian Research Chairs, because of concerns around brain drain and underperformance of the national research system. SARChI "strives to help reverse the systemic decline in research outputs, stimulate strategic research in areas of national and international importance, and provide research career pathways for highly skilled, high-quality young and mid-career researchers that addresses historical racial, gender and age imbalances."

National policy identified the scarcity of high-level skills as a major constraint to the development of both the economy and society. SARChI was therefore designed to increase scientific research capacity by stimulating the generation of new knowledge in a way that supports the implementation of the National R&D Strategy as well as through human capital development that advances equity within the research system. Its main policy focus is to strengthen scientific research leadership capacity in South African higher education institutions (HEIs).

Description of the instrument

The main goal of the initiative is described on the website as "to strengthen and improve the research and innovation capacity of public universities for producing high-quality postgraduate students, research, and innovation outputs," including to:

- Expand the scientific research and innovation capacity of South Africa
- Improve South Africa's international research and innovation competitiveness while responding to the social and economic challenges of the country
- Attract and retain excellent researchers and scientists
- Increase the production of masters and doctoral graduates
- Create research career pathways for young and mid-career researchers, with a strong research, innovation and human capital development output trajectory.

The awards are granted at two levels, Tier 1 and Tier 2, distinguished by the researcher's past research and innovation outputs, track record in supervising and mentoring postgraduate students, postdoctoral fellows, and national and international recognition for their research contributions. Tier 1 is for established researchers who are recognised internationally as leaders in their field and/or have received substantial international recognition for their research contributions. Tier 2 is for established researchers, generally under the age of 40 years with a strong research, innovation and human capital development output trajectory, and the potential to achieve substantial international recognition for their research contributions in the next five to ten years. Tier 1 awards of up to approximately €250,000 per annum (R2.5 million) and Tier 2 awards of up to approximately €150,000 per annum (R1.5 million).

The focus is not on international profiles, but on all researchers who want to work in South African higher education institutes to carry out research. Candidates from abroad who are willing to spend at least 50 per cent of their time within South Africa are eligible for consideration, at the Tier 1 level, with the intention of attracting candidates, including African scholars and South Africans in the diaspora, who have distinguished themselves in their research fields. However, international candidates at Tier 2 level are required to reside full-time in South Africa for the duration of the Research Chair award.

The awards are granted by the Nation Research Foundation (NRF) in a two-phase process. In the first phase it estab-

lishes the Research Chair post at an applicant public higher education institute (university). The process is open and competitive (no pre-allocation to institutions). Its readiness and commitment to host the researcher, as well as the alignment with the research strategy, potential to enhance international research and innovation competitiveness in the discipline, and the potential of the research to impact on the social and economic development of the country, are taken into account during this process.

Once the chairs are allocated at the institutes, in the second phase the institutes nominate the individual candidates and their research proposals. This selection is based on the strength of the candidate's profile, including her/his qualifications and experience, publishing and postgraduate student training track records and that of the candidate's research and activity plan with respect to its ability to deliver on SARChI objectives as well as a proposed budget.

SARChI funding supports individual Research Chairs, but the grants paid to the beneficiaries cover the higher education institution's overheads, operating costs, and support equipment and infrastructure acquisition. In addition, SARChI funding supports fellowships and bursaries to students who they are expected to supervise. The grants are tenable for five years and twice renewable.

Relatively little is known about the outcomes of the programme. The scope of the programme is a little smaller than FiDiPro and the numbers of have grown from 34 to 84 between 2007 and 2011.

CASE 3: Estonia, Researcher mobility programme (MOBILITAS)

Background and rationale

The programme was established under the supervision of the Ministry of Education and Research. It is directly implemented by the Estonian Science Foundation and further managed by the Archimedes Foundation.

The availability of qualified personnel in the R&D sector, particularly in the higher education institutions, is a permanent problem for a small country like Estonia. Due to the resource limitations, the national higher education system is not able to prepare or employ the researchers in all strategically important scientific fields. At the same time, the graduates tend to continue their careers abroad, or in sectors others than R&D, as the salary conditions in the local R&D institutions are not competitive. Of the researchers who currently work in Estonia (data 2012), 26.6 per cent have previously – in the last ten years - worked abroad for three months or more. This share is substantially higher for R4 researchers than for R2–3 researchers (Erawatch 2014 and MORE2 Higher Education Survey).

The mobility support measures such as scholarships and various grants are aimed at relieving the shortages of human resources and making scientific careers in the Estonian R&D sector (especially HEIs) more attractive and competitive. In general terms, it aims to support the development of Estonian research potential and the diversification of international research through mobility and the exchange of knowledge, by recruiting qualified research personnel.

Description of the Instrument

In general terms, the Mobilitas programme aims to support the development of Estonian research potential and the diversification of international research through mobility and the exchange of knowledge, by recruiting qualified research personnel. The objectives of the Mobilitas programme are formulated on the website: "to activate international exchange of researchers and knowledge".

The programme is a financing tool, providing grants for two or three years and providing grants directly to the researcher. There are two sub-programmes: one for top researchers and one for post-doctoral researchers. Depending on the sub-programme, the grant can cover two years (post-doctoral) or three years (top researchers). The top research grant may cover, in addition to the employment of the researcher herself/himself, the employment of other persons belonging to the same research team.

Both researchers at post-doc and professor level are eligible. The sub-programme for top researchers requires that the researchers comes from abroad to work in an Estonian R&D institution to create his or her own research group and do research in the first priority area of the Estonian Research and Development and Innovation Strategy 2007–2013. The priority fields of development stated in the RDI Strategy are ICT, Biotechnology, Material sciences, Energy, Environmental Technology and Health. The top researcher is also expected to supervise at least two Master's candidates and one PhD student and to work for at least 75 per cent of the full employment norm.

In the sub-programme for postdoctoral researchers, the mobility is not limited in terms of direction. This means that not only researchers coming from abroad to Estonia are eligible, but also researchers going from Estonia to an R&D institution abroad or moving within Estonia can apply for a grant. In total, the number of outgoing researchers cannot exceed 20 per cent of all grants awarded under the programme. The amount of inter-Estonian grants will not exceed 10 per cent of all postdoctoral grants. For the outgoing mobility grant, specific requirements are defined, among which is the commitment of the outgoing researcher to come back to the Estonian partner institute to perform research there for at least three years. Also, topics are limited to those of the first priority area. For more details, see the list on the Erawatch website.

Call rounds are advertised in advance (nationally and internationally) and separately for postdoctoral researchers and top researchers. The application submitted by a researcher or a post-doc should be accompanied by the approval of the Estonian R&D institution, which is ready to employ the applicant. The applicants for top research grants must comply with several 'quality standards', including having obtained a PhD or equivalent in a foreign country, having worked as senior research fellow or equivalent, having successfully performed in research projects and grant competitions, having published and supervised research, etc. A detailed list of requirements is available on the Erawatch website. The applicants for the postdoctoral level research grants must have obtained a PhD in an institute other than the one applying, and no longer than five years before the grant and must have worked in an Estonian institute for at least one year before the grant.

The programme was established for eight years, from 2008 until 2015. The total budget is EUR 20.3 million, of which up to 85 per cent is granted by the European Social Fund, state funding is no less than 10 per cent and self-financing of the partners (Estonian R&D institutions) reaches at least 5 per cent.

Experiences

Most of the statistics available are not specified in the programme but are more general in the nature. The outcome statistics for the programme are:

- Number of instructed Master's and doctoral candidates by 2013 – Masters: 20–25; doctors: 10–12;
- Number of post-doctoral scientific publications by 2013: 104 publications;
- Number of research teams initiated in Estonia by 2013 was 15 research teams.

In 2010, a mid-term evaluation of all R&D and higher education measures financed from Structural Funds was carried out (http://www.hm.ee/index.php?047850). In this evaluation, 90 per cent of post-docs and top-researchers who participated in the Estonian Mobilitas programme, evaluated the programme as positive.

The evaluation focused on finding answers to the efficiency, effectiveness and future prospects of the measures (all, not specifically for the Mobilitas programme). "It can be summarised that the R&D and higher education measures support effectively reaching the strategic objectives of HE and R&D strategies.

CASE 4: Belgium, Flanders Region. FWO – Pegasus Marie Curie Fellowship

Background and rationale

Of the researchers who currently work in Belgium (data 2012), 46.5 per cent have previously – during the last ten years – worked abroad for three months or more. This share is substantially lower for R4 researchers than for R2–3 researchers. 54.3 per cent have undertaken short- term moves

The Pegasus Marie Curie Fellowship is a programme established in the Flemish region in Belgium by the FWO (Fund for Scientific Research Flanders). The overarching rationale for the Pegasus Marie Curie Fellowship is to encourage the advancement of Flemish research.

The programme focuses on both bringing back expertise and on pulling new expertise to Flanders with the objective of continuing the development of their scientific careers in Flanders.

Description of the instrument

As mentioned, the programme focuses on both bringing back expertise and on pulling new expertise to Flanders with the objective of continuing the development of their scientific careers in Flanders. In the description on the website, it is specified that the programme aims to attract excellent

postdoctoral researchers to Flanders in order to contribute to the advancement of Flemish research and also to encourage 'return mobility'.

The programme is a financing tool, providing grants directly to the researcher. There are two sub-programmes: Pegasus-long and Pegasus-short. Depending on the sub-programme, the grant can cover one year (short) or three years (long).

Both researchers at post-doctoral and professor level are eligible (thus the researcher must have a PhD prior to applying). He or she must have been active abroad for at least two years since the three years preceding the fellowship. A third condition is that the host institute should be one of the Flemish universities. Each sub-programme also has its own focus and conditions. For Pegasus-long, the researcher must have obtained his or her PhD no longer than six years prior to the fellowship. For Pegasus-short the limit is 10 years.

The applications are evaluated according to the following criteria:

- Quality of the researcher, including research capacity and potential, peer reviewed publications and other elements of the CV (e.g. patents, teaching, advanced training in research skills and methods, scientific background of the candidate, mobility of the applicant).
- Scientific quality of the proposed project, including originality and innovative character of the proposal, feasibility, focus, relevance and consistency.
- Quality of the host institute, including quality of the research environment, training and education, the potential to acquire new scientific and non-scientific skills.

The Pegasus programme is linked to the application procedures of other FWO instruments. The selection procedure includes an internal and external peer review, as for other mandates, but Pegasus uses uniform ranking of researchers. The university ranking is not taken into account. To develop the ranking of the researchers, a new international commission is established to discuss the ranking, cross-domains, of the applications.

The programme was established with the support of the Marie-Curie Cofund initiative of FP7. It was launched for the period from 2012 until 2015 and includes six calls. The success rate is 17 per cent for the Pegasus-long subprogramme and 19 per cent for the Pegasus-short programme.

Reflections on the instrument

There is currently a self-evaluation going on with the programme, which will influence its future formulation One of the expected changes to the programme is the closure of the short-term grants part. This is due to the fact that the short-term grant sub-programme has, to a large extent, similar characteristics as many other programmes. Thus, the short-term grant is also replaceable by other programmes. It has also been detected that the long-term grants are more effective than the short-term grants. The long-term grants are to be continued, with some changes to the format.

The responsibility for programme services is divided between the FWO and the host institution. FWO organises all issues related to contractual conditions (e.g. social security and labour legislation issues) and the host institution organises everything else (e.g. housing and visa). It is good to note that the Flemish research system has been very internationalised for a long time and the universities, thus, have a long tradition of organising such services without separate commandments from FWO.

To help integration of the programme participants, special training packages are also organised. One interesting integration service offered by the programme is training entitled the "low countries course". The course provides basic knowledge on language, context, the history of Flanders and the Netherlands.

Cooperation between researchers and industry is often organised through other instruments. Some instruments exist for PhDs, but not for top scientists. A platform for industries to meet with researchers is the award of scientific prizes sponsored by industry and organised by FWO. As an exchange medium for the sponsorship, the industries receive a list with all candidates and can use it for recruitment purposes.

FIDIPRO AS A PART OF THE NATIONAL INNOVATION SYSTEM

The "Problem of Mobility" in Finland

However, when seen from the viewpoint of publications, mobility, cooperation and research financing, Finnish science and research have clearly internationalised in the past decades. The internationalisation strategy emphasises that Finland must ensure the renewal processes and sufficient availability of experts and researchers. To this end, an increase in the number of foreign researchers is as yet an unresolved challenge and it has not been possible to remove the barriers to the exploitation of knowledge and know-how (Research and Innovation Council of Finland, 2009). In 2012, non-native nationalities accounted for 13 per cent of research staff at Finnish universities (Academy of Finland, 2012).

Based on a national survey in 2007 there exists an internationally mobile group of roughly one-third of Finnish researchers, while another third of Finnish researchers do not appear to be at all mobile. However, this conclusion should be approached with a certain amount of caution and used only as indicative of the real situation or an existing trend. Of all respondents to the study, 26.4 per cent had spent six months or longer periods at a time abroad working in a research- related job at some point of their career, in comparison to research work (Kukonpalo 2007).

All in all, for example, the share of researchers from other nationalities has risen from 10 to 15 per cent during 2008–2011 for those researchers who receive funding from the academy. The academy researchers share is already over 20 per cent during 2011 (Academy of Finland 2012).

Looking at it the other way around, one could look into MORE2-project panel data, which estimated that around

Figure 3. Perspectives on Mobility in the EU.

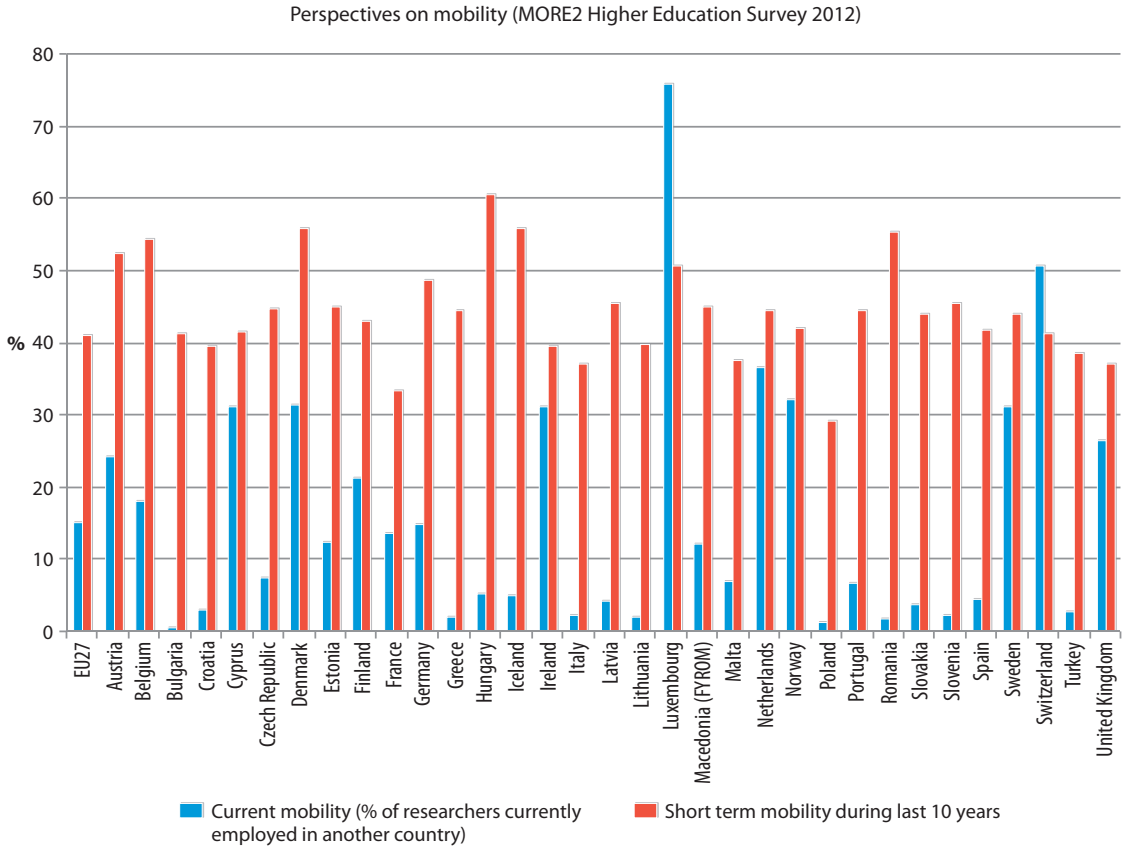
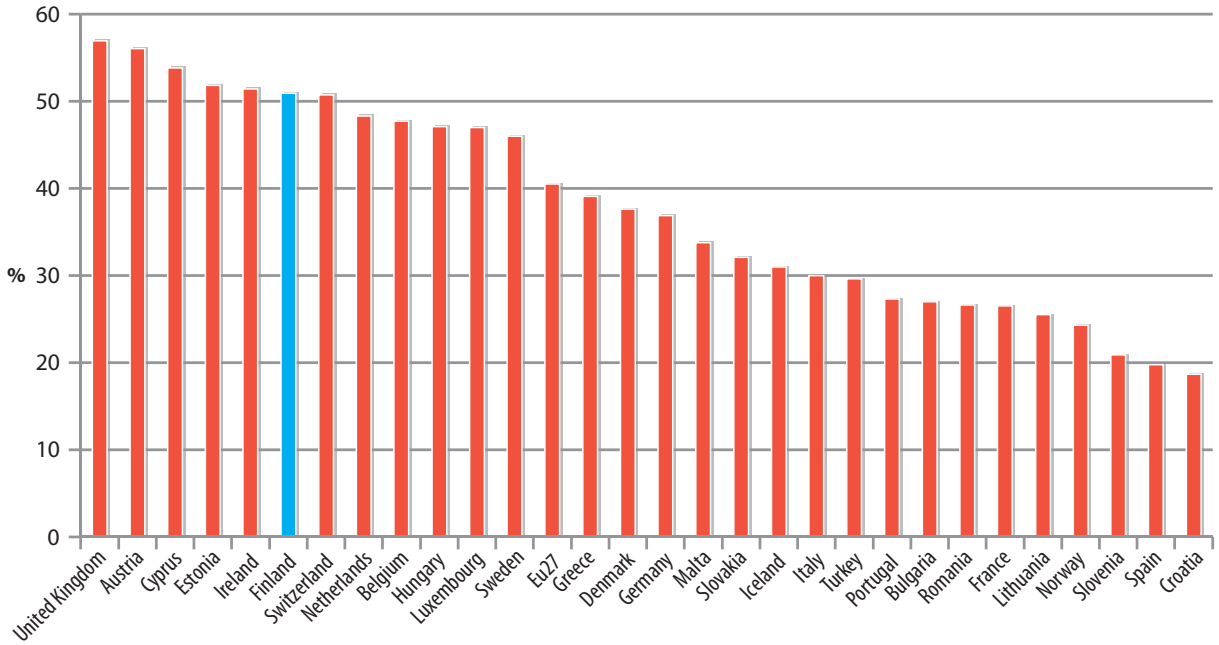


Figure 4. Post-PhD Employer Mobility.

Post-PhD employer mobility – Share of international >3 months mobile R2-3-4 researchers that have changed employer in at least one of their moves, in % and by panel country (Source: MORE2 Higher Education Survey 2012)



20 per cent of Finnish researchers based on citizenship already worked abroad and more than 40% have had at least a short-term period over three months during the last years (see Figure 3). Even though these numbers are above the EU average, the approximate 60 per cent with at least one visit abroad related to their international mobility and willingness to move is considered as an issue.

If we look at the circulation of post-PhD researchers who have also changed their employer during their last move, it could be stated that the mobility of Finnish researchers in this respect is already quite good (See Figure 4).

In this context, we can see that there is an increasing amount of internationalisation and mobility among Finnish researchers. However, as many interviews point out, there is still room for development.

FiDiPro as part of the Finnish System

According to a recent evaluation of the Academy of Finland, commissioned by the Ministry of Education and Culture, FiDiPro has received a very mixed response. Some of the people interviewed in the evaluation were of the opinion that it is a good programme allowing universities to attract good international researchers, while others stated the selection procedure does not necessarily select the very best researchers. Anecdotal evidence from the interviews showed some successful cases in which the FiDiPro professor managed to leverage additional resources. It was said in the interviews that success largely depends on the individual recruited and what he/she makes of the position in the university. However, it was concluded that without a dedicated evaluation of the programme there is not enough evidence to provide a sound judgement on the effectiveness of FiDiPro (Ministry of Education and Culture, 2013).

FiDiPro is described in some of the key publications as an important and dedicated tool for global internationalisation (Academy of Finland 2009). FiDiPro is one of the best means of attracting international participation in research, development and innovation in Finland. However, it was suggested that FiDiPro should be utilised more actively within the SHOK activities and linked more closely to the SHOKs by

Tekes and Academy of Finland (Ministry of Employment and the Economy, 2013). FiDiPros have been integrated into Tekes programme activities (8 FiDiPros) as well as to SHOKs.

From the academy's perspective there are current changes in the operative environment of FiDiPro which might be relevant to consider in the future. These are:

- The development of Finland's first national research infrastructure strategy and roadmap
- Development of the academy's law and resourcing for profiling
- Development of Tenure Track concepts in several universities.

The Finnish Research Infrastructure Committee (FIRI Committee), a body appointed by the Academy of Finland, has published Finland's first national research infrastructure strategy as well as an updated infrastructure roadmap. The publication covers the years 2014–2020. The roadmap is a plan for key research infrastructures in Finland that are either under development or that will be newly required over the next 10–15 years. Research infrastructures form a reserve of research facilities, equipment, materials and services. As such, they are essential instruments for research. As some interviewees pointed out, this is a relevant strategy also for utilising FiDiPros in the future.

Another change in the operative environment is the new Government decision on state research institutions and research funding (5.9.2013) which forms the Council of Strategic research. The council's funding will be geared towards important societal challenges and provides also a new viewpoint of FiDiPro's situation. In connection to this decision, the Government has decided (25.3.2014) on a state budget which transfers 50 million euros from the base funding of the universities to the Academy of Finland with gradual transformation during 2015–2019. This means growth in the Academy's competed research with 50 million euros from 2015. One aspect is how the FiDiPro funding could complement this 50 million euros in the future and should there be more linkages between the 50 million geared towards the key profiles of the universities they are themselves establishing and the FiDiPros in the future.

Another change in the operative environment is also the development of the Tenure Track concept in many universities in Finland, which provides a clear and stable career path towards professor-level positions and creates incentives in personal professional level development (see, e.g. http://www.aalto.fi/fi/about/careers/tenure_track/). It should be noted that, in most cases, mobility instruments are internationally geared towards those researchers who are in the first phases of the tenure track.

The latest Academy of Finland review "The State of Scientific Research in Finland 2012" states that the Academy of Finland FiDiPro funding opportunities should be targeted at younger scientists and researchers than is currently the case, since the recruitment of postdoctoral researchers and early-career professors is seen as a fast and effective way of enhancing the internationalisation of the Finnish science system (Academy of Finland, 2012). Some of the interviewees point out that the concept of the Tenure Track should be taken into account when considering the future of the FiDiPros, both in terms of retargeting the instrument but also combining the FiDiPros to the concepts, which are currently developing Finnish universities.

Implementation of the Programme

This section focuses on the implementation of the FiDiPro programme – resource utilisation and programme administration in relation to the production of outputs and progress towards expected outcomes. The focus of the evaluation has been on the selection process, administrative practices, and support provided by the programme to universities and FiDiPros.

INTRODUCTION

The Academy of Finland and Tekes launch FiDiPro application periods at regular intervals. The funding parties comply with their own application procedures. The application process is a two-phase procedure. In the first stage, the applicants are asked to submit a short proposal of the planned FiDiPro project. The applicants selected for the second phase will submit a full application.

FiDiPro Professor funding is intended for projects that will recruit foreign, professor-level top researchers. FiDiPro Fellow funding can be used to recruit promising top researchers past their postdoctoral stage. The Fellow researchers should have completed at least three to four years of postdoctoral research. Expatriate Finnish top researchers who have worked abroad for long are also eligible for FiDiPro Professor and Fellow funding.

FiDiPro funding is granted to research projects that cover the top researcher's salary and travel expenses and the costs of the research project. Funding is awarded to projects for a fixed term with a funding period of two to five years.

The top researcher recruited should work a minimum of four months per year in Finland. During the whole project period, the top researcher should work in Finland for at least 12 months. The top researcher shall actively take part in carrying out the research project and in the work of the Finnish research group(s).

FiDiPro professors are placed at and employed by a Finnish university or research institute. The recipient of the funding, the Finnish university or research institute, is responsible for the recruitment, appointment and the terms of employment of the FiDiPro professor. The applicant organisation is required to provide administrative assistance as well as assistance in practical matters such as relocation.

CHRACTERISTICS OF FIDIPROS

All FiDiPro professors and fellows have had some connections to Finland before the FiDiPro assignment.

The largest group includes professors who have long-term (over 10 years) connections – including professors with Finnish background or spouses – but also professors whose collaboration has started during their studies or who have other long-term joint projects (46%, 26). In some cases the professors were already invited to Finland as visiting professors and FiDiPro funding was established afterwards.

The second largest group is professors (37%, 21) who have not had any collaboration at the project or working level, but have met a few times at seminars or congresses and started to find ways to collaborate. Some have got contacts through a single research interest. One professor, for example, was first invited to Finland to hold one course and then after that they wanted to continue collaboration and found the FiDiPro infrastructure) or exceptionally good laboratory environments, which they found very attractive or as a one-time opportunity for their research.

Figure 5. Connections to Finland before the assignment.

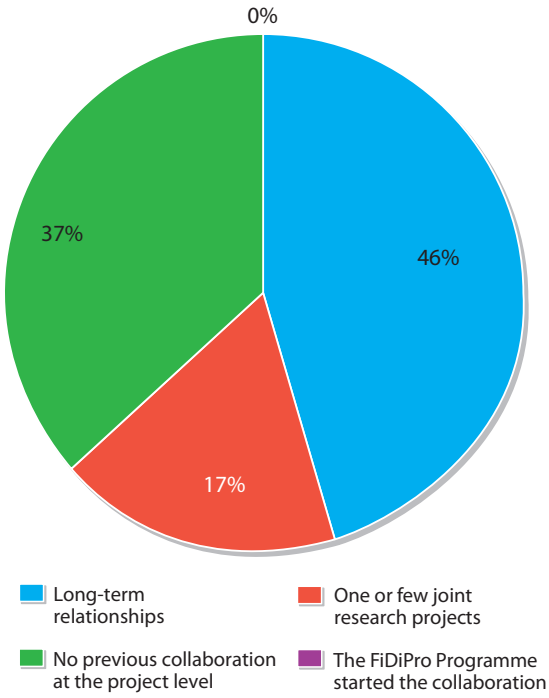
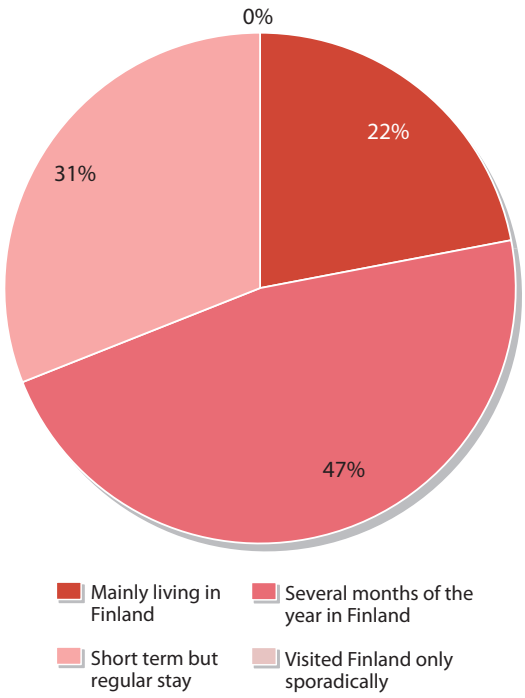


Figure 6. The duration spent in Finland.



The third biggest group have had one or a few joint research projects but no permanent connections to Finland (17%, 10).

Many of the interviewed FiDiPros pointed out that the programme offered them an opportunity to focus on research instead of the university administration and daily paperwork. Quite many also mentioned that they settled for a smaller salary for this opportunity and emphasised that the possibility to join the research project was more important. The fact that many professors were in the later phase of their career helped the decision in many cases: they wanted to focus on research and were not concerned about their further career, although they found FiDiPro funding also as an honour.

Many professors knew the research units beforehand and were eager to work with the Finnish researchers and students. Only a few had so high expectations that they were disappointed by the programme. Some FiDiPros brought up, for example, that Finland has a unique national heath care statistical system (/IT-infrastructure) and an exceptionally good laboratory environment, which they found very attractive or as a one time opportunity for their research.

Some FiDiPros have already worked in Finland for companies, university or other organisations so they knew beforehand the working culture and conditions in Finland. Those coming here for the first time for a longer period of time were often first concerned about the weather and, for example, language barriers but were satisfied afterwards.

The duration spent in Finland varied a lot. Some researchers had also had negotiations with Tekes, which had made it possible to have exceptions in the time of stay in Finland. Some researchers were present only on a weekly basis and telecommunicated a lot of the time. For example, in one interview it was mentioned that being able to primarily transfer between the home country and Finland instead of fully moving to Finland was a precondition for accepting the FiDiPro assignment.

The reasons for not staying a longer period in Finland were often related to the fact that professors are not able to keep their chair or research group in their home university. FiDiPros also wanted to combine the research and teaching in their home university and, in most cases, found it more

productive also for further cooperation. Although, as a disadvantage, difficulties with managing responsibilities especially in the home university were mentioned.

PROGRAMME ADMINISTRATION

Almost all the interviewed professors and fellows were very satisfied with the practical arrangements and the support from the host university. They received help, for example, for paperwork and accommodation. Almost all information needed was given in English also during the stay in the universities. Many of those living frequently or most of the time in Finland had a Finnish family or they brought their families with them. For a few, it required some extra work to solve practical issues such as a kindergarten or school for children or a work place for a spouse. Finnish visa issues were also mentioned as a practical problem for the family.

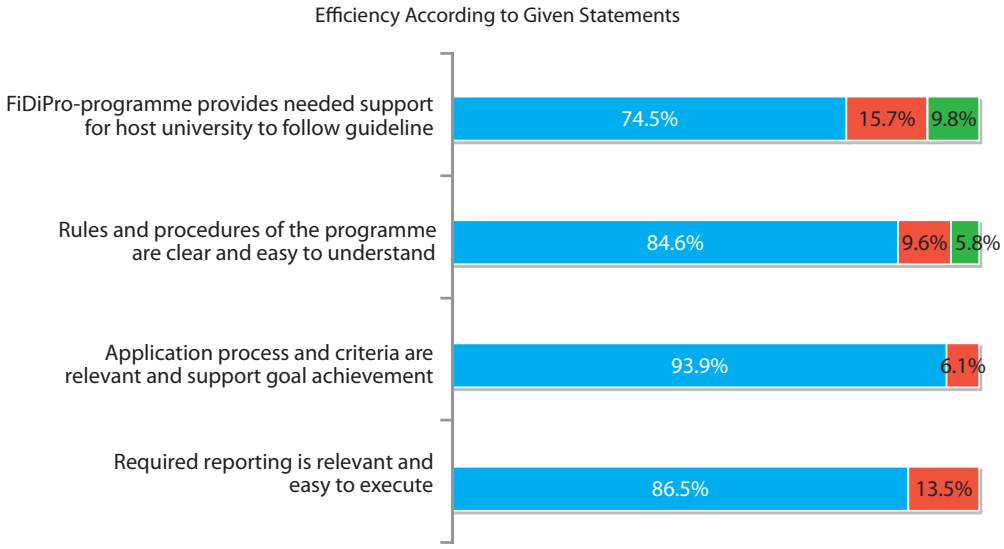
Based on the survey, host universities' views of programme administration are very positive. The results would indicate that few administrative problems are faced during the application process or after it. Despite the overall positive approach, the host universities seem to still yearn for more support; approximately 26 per cent of the survey respondents (N=52) have a neutral or negative approach to the support FiDiPro's administration gives to the host university in following guidelines.

Ninety-four per cent of the respondents view the FiDiPro application process and criteria as relevant. As such, the selected application criteria is seen to support the achievement of goals set for the programme. The remaining six per cent takes a neutral approach to the application process. Thus, none of the respondents find the application process and criteria to be irrelevant in supporting goal achievement.

Required reporting processes are also considered relatively smooth and convenient by the host universities. Eighty-seven per cent of the survey respondents find required reporting to be relevant and easy to execute. The remaining respondents again have a neutral approach to the application process, and none of the respondents considered reporting to be difficult to execute.

In some cases the experienced smoothness of reporting processes may be due to long experience in different application processes in the host university. For example, it was stated that the "reporting requirements of Tekes-funded FiDiPro projects are quite similar as in regular Tekes research projects".

Figure 7. Programme Efficiency According to Host Universities.



Another respondent polarised the reporting requirement to EU projects, and concluded that the required reporting in FiDiPro is much easier – and should also be kept that way. As a whole, only a handful of respondents had concerns concerning reporting. Some separate individual concerns include too high reporting frequency, reporting assumption that time spent in Finland is calendar time though working hours should matter, and the reporting of different kinds of project partners unfamiliar with Tekes' reporting system.

According to host universities, the programme administration is also relatively efficient in terms of its rules and programme procedures. Eighty-five per cent of the respondents find the rules and processes of the programme to be clear and easy to understand. Correspondingly, six per cent find the opposite. The remaining respondents find the rules and procedures to be neither easy nor difficult.

Identified challenges

While host universities find the programme rules easy to follow, every tenth respondent from the host university would need more support to follow the guidelines. Further, 16 per cent neither thinks that the FiDiPro programme provides the needed support nor does it not. On the other hand, 74 per cent thinks that the FiDiPro programme provides needed support. Hence, while the outlines of rules, required reporting and application criteria seem highly relevant in host universities' views, they would like more emphasis to be put on support in different activities. The results of the host survey on the part of administrative efficiency were grouped in Figure 7.

Most of the FiDiPros stated they did not receive support from the FiDiPro programme and it was fine in most cases. Some found it anyhow surprising and some even absent. The universities have responsibility to organise and arrange practical issues but when problems appeared, in the worst case, a few interviewees found that no answers were given. One stated that he does not know whom to contact if he needs an answer.

The FiDiPro funding may cover the salary and travel costs and other expenses. Still quite many interviewed brought up misunderstanding concerning the funding. Two (at least) had problems hiring their research groups. One had a misunderstanding concerning the salary: University's overhead was bigger than expected. One understood that the university would pay the rent. None of these reduced their overall satisfaction with the FiDiPro funding. A few also indicated that those with a family could also be helped financially, making the decision to come here more attractive.

Only one professor was very unsatisfied with the host university and funding. The dissatisfaction concerned salary, project budget, research staff and practicalities.

The steering group practice was brought up as a good practice in a few interviews.

The support expected was in most cases more "mental" such as "welcoming" and annual meetings. Also, quite many suggested regular possibilities – meetings or seminars – to present the research projects. Some follow-up or alumni activities were suggested.

Results and Impacts

This section focuses on the results and impacts of the FiDiPro programme: To what extent is the programme achieving or demonstrating progress towards achieving expected outcomes? The results and impacts are analysed from three different perspectives: Impacts on individual research projects and project partners, impacts on host universities, and impacts on the Finnish innovation system.

Introduction

Results and impacts were identified by sending open- ended questions to host universities, FiDiPros, and project partners (e.g. private companies). All these stakeholders were asked to indicate what specific impacts they had experienced.

The most frequently mentioned result impacts can be classified into two categories: (I) Direct results for the funded project and (II) Wider impacts for the host university and Finnish innovation system.

I Direct results for the project
- Increased research capabilities
- Novel research areas and methods
- New perspectives
- Publications.

II Wider impacts for the host university and Finnish innovation system
- International exposure and collaboration
- New research networks
- Motivational impact in the research faculty
- New working culture.

Increased research capability is a direct consequence of the FiDiPro funding and thus an obvious result. The whole rationale behind the funding instrument is to attract top-level expertise. Also novel research areas and methods and new perspective can be seen as a direct consequence of the funding.

FiDiPro funding also has important, less direct impacts on host universities and on the Finnish innovation system in general. Having an opportunity to work with well-known top-level researchers has a potentially great motivational impact, especially for students and younger scientists. FiDiPros have also contributed to ways of working and "academic culture" in the host universities. These indirect factors are potentially much more important than more direct project level results.

Many of the interviewed FiDiPros mentioned increased publication activity in the host university as one of the most obvious results. This notion is supported also by bibliometrical analysis conducted within this evaluation: activity of Finnish co-authors has increased during FiDiPro funding.

Probably the most important result of FiDiPro funding is the new and sustainable international networks and new forms of international collaboration that have been created during FiDiPro funding. With few exceptions all interviewed FiDiPros were confident that collaboration after the project continues and with many already finished projects this has been actually the case.

Results and impacts are elaborated in more detail in the following chapters.

Increased research capabilities

Most host universities view the FiDiPro programme as offering an exceptional opportunity to bring additional top-level expertise to its research teams.

Ninety-four per cent of host university respondents in the survey concluded that the funding was crucial in attracting international researchers to Finland. Many stated that it would not have been possible to bring such experienced researchers to the university at all without the programme funding. A respondent even stated that the funding and the experience it brought were crucial for the survival of the research team the FiDiPro was placed on.

Host universities believe that the value of the FiDiPro has especially been in increasing knowledge. Ninety-six per cent of the survey respondents stated that the presence of FiDiPro has influenced the transfer of new methods, knowledge and technology to the whole research team, and to the host university in a wider sense. More than half, moreover, stated that the influence of FiDiPro has been very significant in the transfer of knowledge. A respondent described the knowledge transfer effect as follows: "The project has definitely made it possible to deepen the knowledge of the group and to educate PhDs with a strong scientific and R&D background." The effect of FiDiPro on the university may have also been motivational in the sense that it has urged the members to increase their level of knowledge. This influence has in some cases exceeded the research team the FiDiPro professor was embedded in.

New research areas

The programme has also opened up novel research areas and methods for the research teams in the host university. It was, for example, stated in the survey that the FiDiPro programme has allowed the university to become familiar with new fields, both of an academic and more practice-related nature. For some teams this has meant "moving beyond their comfort zone" and, hence, to be more innovative in their activity. In addition, 65 per cent of the survey respondents felt that FiDiPro has influenced the ways of working within the research team. Opening up novel research areas and contributing to the knowledge level of the organisation may have also quality of publications. Many host universities were left with the impression that the presence of FiDiPro has resulted in a number of new high-level publications.

In a wider sense the host universities have benefited from the programme especially due to new contacts and cooperation both nationally and (especially) internationally. Ninety per cent of the survey respondents find that FiDiPro has positively influenced the facilitation of international collaboration in research projects. Also, 86 per cent felt that the programme helped in establishing a long-term relationship between host and home university. Only one respondent (2 per cent correspondingly) stated that FiDiPro has not at all played a role in developing the relationship between host and home university.

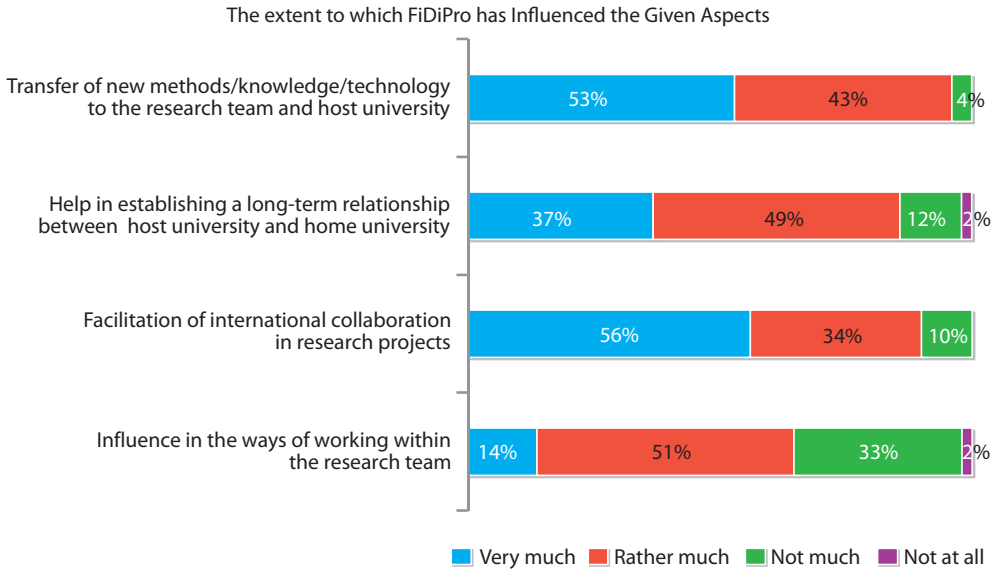
International exposure and collaboration

New collaborations have been especially relevant after the programme. Even if the research output during the FiDiPro programme would have been smaller, new collaborations have ensured high productivity after the FiDiPro period. On the other hand, the extensive network of the FiDiPro professors has also been helpful during the project in meeting possible obstacles in the project or in enabling faster progress in the research initiative.

Cooperation between organisations has had different forms in different cases. Ranging from pure involvement only in the research project, it can have included "visiting researchers, professors, lecturers, and seminars and workshops together". It was also stated that in the case that the visitations of international top-level researchers were expected in any case, but the FiDiPro contract has increased the long- term commitment of such experts.

While host universities have in general highly positive views of the impacts of the FiDiPro programme, it should be noted that many of the research projects are still on-going or in the initial phases of the project. Some respondents were not yet able to discuss the benefits of FiDiPro. Similarly, many of the responses given reflect the short-term benefits of FiDiPro, and to see the long-term sustainability of international collaborations, for example, might require later examination.

Figure 8. Host Universities' View of Programme Impacts.



Working culture

Interviewed FiDiPros see the results in a very similar way with host universities. However, interviwed FiDiPros mention often also impacts on the way of doing research and the working culture in the host universities. The work in the universities and research institutes abroad was seen as more competitive and challenging for the researchers. However, there were also opposite opinions. One point of view was that in certain fields of science Finland might be a kind of victim of its own success. It means that the very high education and good level of research does not motivate students and researchers to go abroad as they are satisfied with the Finnish level of science.

Impacts on publication activity

A limited bibliometric analysis of the publication activity of the FiDiPros and publication activity of co-authors was carried out in the evaluation. Due to limitations and the more qualitative approach selected, the analysis focuses on a limited number of publications and more sophisticated indicators of publication impact or the host university impact more generally. Some FiDiPro professors and co-author data was not available in the Scopus database to the full extent. Data includes both peer-reviewed articles as well as conference proceedings. Thus all numbers contain a small error margin, but give an overall picture of the success.

Figure 9 describes the average publication activity of FiDiPros. Given the rather senior nature of FiDiPros and the relatively tight scrutiny of the applications, it is not surprising that the level of publication/year is relatively high. There is quite extensive variation in publication activity during the FiDiPro period and a downward trend normally after the FiDiPro period.

Generally, time before the FiDiPro period has been a time of increasing scientific publication for the FP-professors. The exponential development in publications or citations has somewhat stalled. Despite this, many FPs have still been relatively active in recent years as well. In terms of publications 84 per cent of FiDiPros have had more publications on average in the last three years than the decade before the FiDiPro period, which means that they have also been active in Finland. Ninety-five per cent of FiDiPros have had more citations on average in the last three years than the decade before the FiDiPro period.

Figure 9. Average Amount of Publications of FiDiPros.

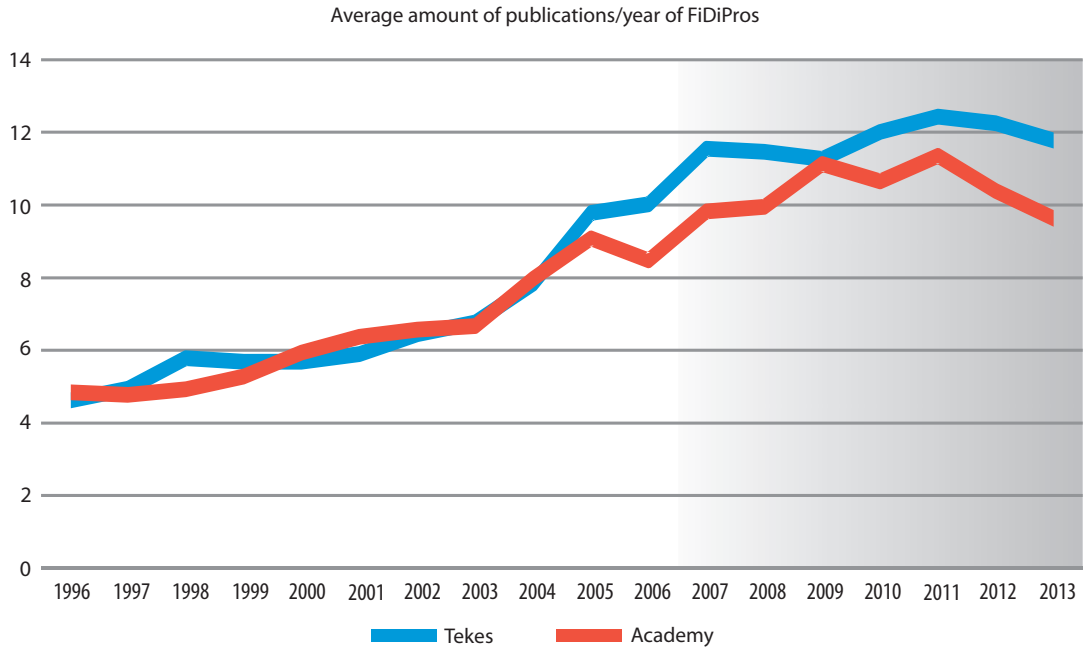


Figure 10. Average Number of Citations of FiDiPros.

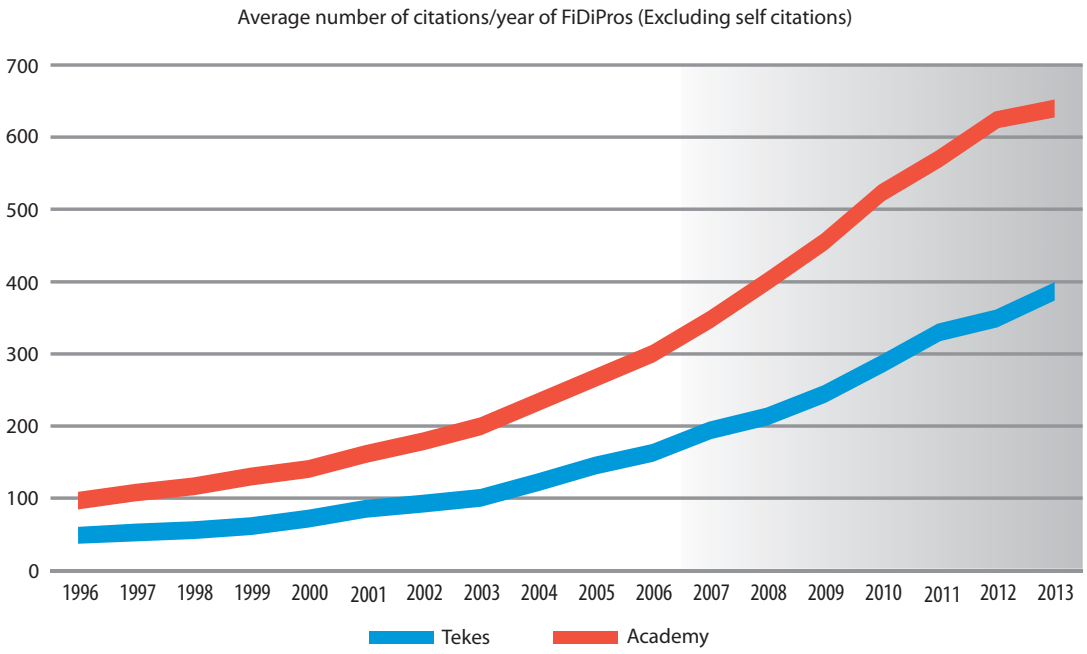
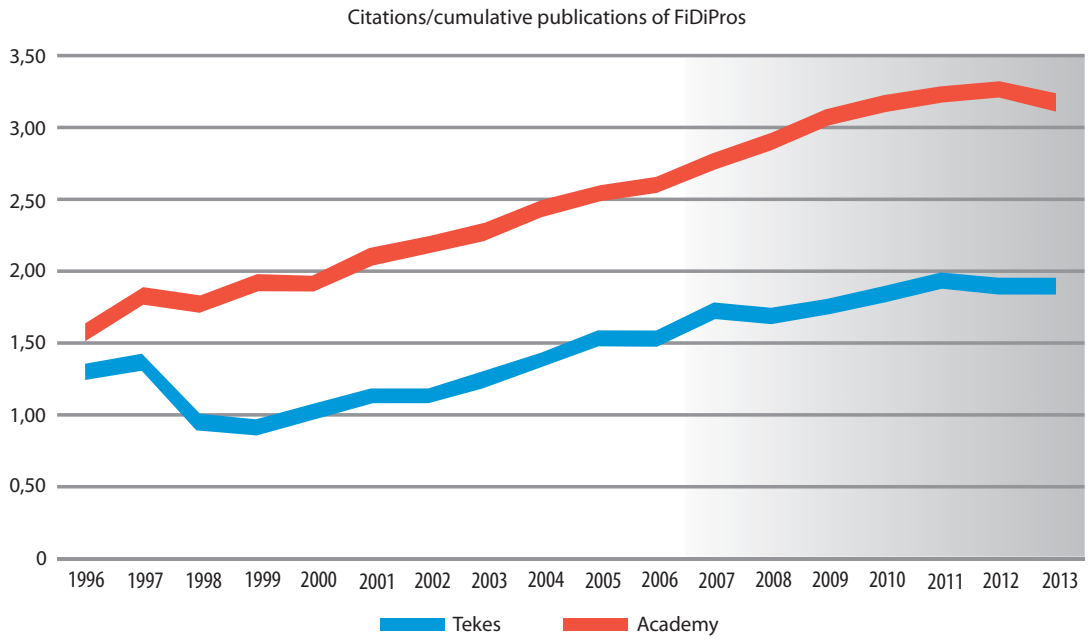


Figure 11. Yearly Number of Citations per Cumulative Publications of FiDiPros.



As for the citations, it can also be seen that the FiDiPro period has been a time when the researchers have also been cited, both in terms of overall average citations (Figure 10) and citations in a year per cumulative publications (Figure 11).

Those persons with a very senior profile, almost emeritus type of profile tend to have a slight decrease in terms of citations / publications during the FiDiPro assignment in relation to their early career, when they have had a "breakthrough" in their scientific field.

Affiliation, publications and co-publication

A more detailed analysis of a sample of FiDiPros was further carried out. This analysis was limited to those FiDiPro projects, which had been finalised by the end of December 2013. The sample included 41 FiDiPros and 602 Finnish co-authors.

For some of the FiDiPros, the share of Finnish co- authors (identified based on the name of the Affiliated organisation) is rather large, totalling 30–37 per cent of all co-authors. The total amount of publications the FiDiPros published during their stay in Finland was 1,788 in 2007–2013.

The affiliations were manually tracked from Scopus and the profiles (share of affiliations mentioned for FiDiPro publications) are listed in Figure 12. The figure seems to state the obvious profiles of the FiDiPro but also emphasising that the expected involvement with Tekes FiDiPros have also been realised in the research and publication activity.

As stated, the sample FiDiPros have had over 602 Finnish co-authors. Many of these date back to the time before the FiDiPro period, but the extensive amount of co-authors has emerged during their stay in Finland.

Many interviewees stated that one aspect of the FiDiPros has been also to increase the publication activities in the host universities of younger researchers. The average amount of publications per year has been increasing for both the co-authors of Tekes and the academy's FiDiPros.

However, the median value has been increasing in Tekes projects from 0 to 1 and in academy projects from one to three during FiDiPro. This emphasises the rather junior role of some of these co-authors.

As noted in earlier studies, international co-publication in Finland has significantly increased during the last 20 years. At the beginning of the 1990s only a quarter of the publications included researchers in other countries. At the beginning of 2000, the share of international researchers had already increased by 40 per cent and during 2006–2009 almost half of all publications (49%) are written in international cooperation (Academy of Finland 2012).

In this context, it could be argued that publication activity in Finland is already relatively international.

It seems that for the larger amount of co-authors the time during FiDiPro has been more active than the time during 2000–2006 in terms of average publications per year. Also, if we look at those co-authors who have had more average publications per year during the FiDiPro time than the average amount of publications produced during that time, it could be argued that FiDiPro has been a significantly more active time for 15 per cent of the co-authors. When looking at a person level, these 15 per cent are normally those researchers who have had some publications from FiDiPro, but who have significantly benefitted from FiDiPro (See Figure 13).

Figure 12. Affiliations of the Sample FiDiPros.

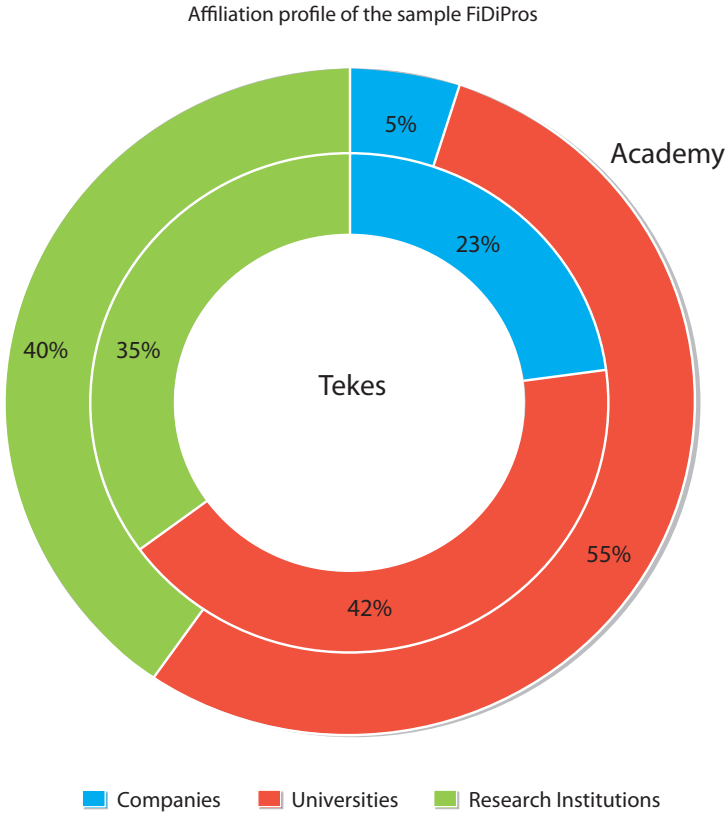
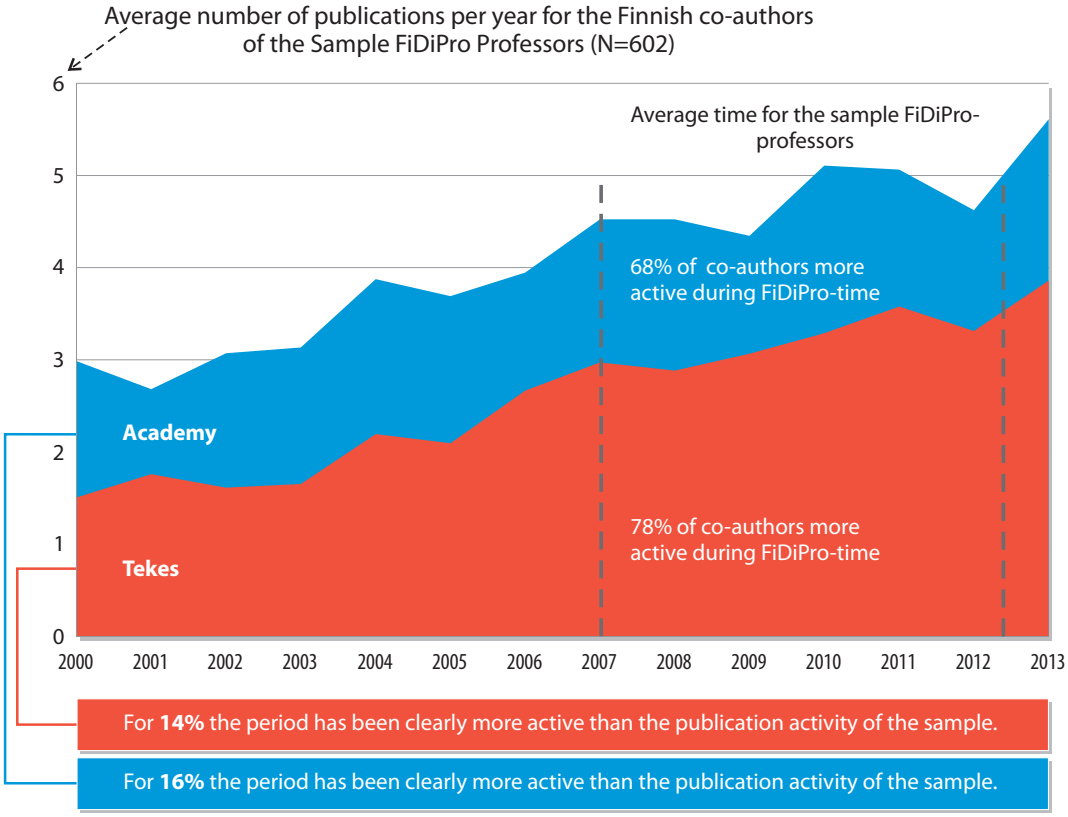


Figure 13. Average Number of Publications of the Finnish Co-authors.



Impacts on Finnish Innovation Systems

Host universities stressed that the partners of the university are likely to benefit from the results in concrete new solutions, findings and innovations. Many respondents highlighted the fact that more sophisticated research enabled by the FiDiPro professor and his expertise contributes to scientific breakthroughs which can then be used more or less directly by companies in their own R&D. Moreover, it was noted that the collaboration structures were built in the programme results in new intellectual property. As a concrete example one host university had created novel tools for the development of new patient treatment options and diagnostics.

It was also pointed out that the FiDiPro programme is expected to create solutions that can create entirely new business opportunities for industrial partners. A good example was an expectation that the results of a certain research project can be delivered in a set of tools that can promote and fund the renewal of entire industries. These results have also raised international interest. However, those respondents who had the expectation of renewing industries and providing novel business opportunities were all in the middle of project implementation. Hence, such impacts have not yet been seen by the host universities.

Some of the projects in which the professors and fellows were part of involved close cooperation with Finnish companies. All interviewed company representatives confirmed the notion that no concrete results had yet been seen. Surprisingly, however, all but one respondent clearly stated that concrete business results were not even expected from cooperation with the professors. Goals had been set far into the future for the projects in which the FiDiPro professors were involved. A company representative also noted that long trajectories in product development are characteristic of the sector in question due to, for example, regulatory peculiarities. Thus, short-term gains from the projects were for most companies unrealistic or unexpected. A company interviewee, however, wished that the established FiDiPro projects would also be focused on creating actual products that could be converted into operating profit also in the short-term.

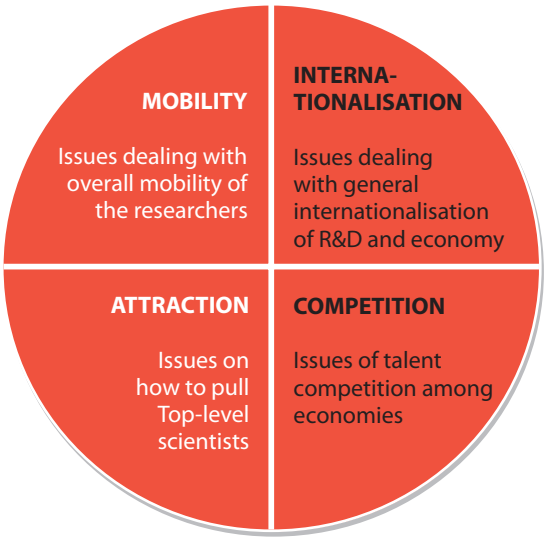
Despite the lack of concrete short-term gains, all of the companies considered the programme to have been at least in some way beneficial and a positive experience. All but one representative named networking as the most important impact of the programme and networking possibilities also represented the most crucial motivation behind participating in the programme. Another central motivation for participation was raising awareness of the company especially internationally. The created new contacts included, among others, other Finnish companies, domestic research institutions, the FiDiPro professors and their international network.

All interviewed companies considered the FiDiPro programme to be important for Finland as a whole. The acknowledged benefits of the programme included making Finland known internationally, receiving top-level expertise in Finland, increasing exchange of researchers between home and host universities (especially of young researchers) and lowering the threshold of coming to Finland. A company noted that the FiDiPro professors can also look at the Finnish innovation and research system from a fresh perspective. That is, the FiDiPro professors carry important knowledge of not only their own area of expertise but of the innovation systems of their home countries relative to Finnish ones. The Finnish research community could benefit from collecting the FiDiPros' views of the differences between home and host countries' systems.

It was also stated in an interview that the funding is very important for SMEs to be able to get in contact with top-level experts in their area of business. On the other hand, the programme can also be beneficial in bringing expertise to the country for a big company with a very special area of expertise. For such big companies (which often might be the sole providers in their expertise area in a country the size of Finland) the research practices do not necessarily come as naturally as for SMEs with multiple competitors and an "inner need" to grow.

While the companies and many host universities see FiDiPro as necessary change-making, too, many host universities also consider FiDiPro as a "just another funding instrument". The opinions for its necessity often emphasise it as a great opportunity to increase the visibility and quality of Finnish science. Moreover, it may well be "the only way" to get top researchers to Finland, which by location and size, for example, is rather remote and small. On the other hand, it is noted that in some disciplines (and universities) international collaboration is already active without FiDiPro. The number of such disciplines is, however, admittedly small. Most of all, the effect is naturally very dependent on the acquired professor in question.

Figure 14. Need for Funding Programmes to Attract Top-level Expertise to Finland According to Host Universities.



All the interviewed FiDiPros agreed the programme is a good tool for the internationalisation of Finnish research. It is important to have multinational research groups to get as wide an understanding as possible of the specific research themes. And the programme has in many cases enhanced that.

In addition to internationalising research in Finland with new knowledge and connections, many professors have also managed to influence also the mobility of students. There have been many good examples of student exchanges thanks to the connections the FiDiPro professors have created.

Also, at least one professor also invited Finnish companies to his home university to develop their products. The mobility of Finnish students was seen as a bit problematic by many interviewed. It was stated that Finnish students don't go abroad as much as they should to enhance their own as well as the departments' knowledge. Usually, the researchers return to their home universities at some point in their careers and that would be very useful to Finnish universities. However, there were also examples that the FiDiPro professor had offered the researcher of the host university the possibility to work in the United States for six months but they refused.

There were many opinions that stated that the differences in departments' internationalisation are prominent. The departments that already have many researchers abroad are usually the best ones and the most attractive for distinguished professors. And vice versa, those that don't represent that high level of research are not that attractive. It might also be the case that the impacts of FiDiPro assignments are not so good due to the difficulties of creating continuity to the assignment period's research.

In the science fields where there are exceptionally good laboratory environments, by international standards also, those facilities should be used as an attractive point to the researchers. In many science fields there is a lack of good quality laboratories. It was stated that Finland should really utilise these good facilities. It was also pointed out that the programme could concentrate on the good laboratories and support those so that they would be even more interesting to top researchers. One professor also suggested that the good Finnish laboratories should do more collaboration with national and international companies to get more funding.

It was also stated that internationalisation should not be the objective. Instead science should reach the quality and the depth of research. Internationalisation would come as a side result.

The comments concerning how internationalised Finnish research is varies a lot depending on the field of science. There were opinions of both departments being very internationalised with a high level of research as well as departments representing just the average level of research in its field of science, and many between those two.

More than a couple of the interviewed FiDiPros mentioned that they would like to see a similar FiDiPro instrument in their own country, and a few also mentioned that they have already been active in promoting it.

As many of the FiDiPros have some kind of special relationship with Finland, such as their own or spouse's background, it was pointed out in the interviews that the challenge is to find distinguished professors or researchers who have some special connection to Finland. In that way, it was indicated that there aren't really that many departments in Finland where that would by itself be enough to interest the world's leading researchers and the special contacts would in many cases support them to choose the Finnish programme.

There were many development suggestions pointed out. One that was repeated a few times was that the amount of money per assignment could be smaller so that the same budget could offer possibilities to a larger number of research assignments. Also the time that is required to stay in Finland was criticised by many. It was suggested that shorter time periods in Finland would motivate more the focus group of the programme. It was mentioned that, for example, in the United States the professors have nine month- terms and the possibility to stay only three months could interest more researchers than now.

However, when considering that aspect it has to be remembered that the impact of the assignment very often correlates to the time period stayed in Finland. Most of the interviewed also thought that the five year-period is very good because it takes time to get results in many fields of science and research subjects. So reducing the length of the period is not automatically an answer to the objective of internationalising.

Most of the interviewed companies also noted that it would be beneficial for the Finnish innovation system to increase the involvement of the FiDiPro professors with in-

dustries. Especially projects that receive funding from Tekes should be more closely tied to company involvement. In this case it was noted that the jobs the FiDiPros have in the companies are not jobs that can be done from a distance and the presence of the FiDiPro is expected.

While all of the companies were very happy or at least somewhat satisfied with the programme, it would seem that the closer the connections with the FiDiPro became, the more satisfied the companies were with the programme. This was even though the concrete business results were relatively small. On the other hand, the role of the company representative also seems to matter. The personnel that were more closely attached to research activities in the company expected results more in the long term, while operational management would have liked to see results already in the short term.

Identified challenges

Recruitment of researchers to the project

One main factor that has affected the results has been the recruiting of staff to the research project. For a few interviewed FiDiPros, it was a surprise that they had to recruit the research group. Even though it took time it turned out to be one of the key factors in the success of the research. It was important that they could influence the staff and the competencies needed. Most of the staff of the research projects were students and post-doc students. It was considered to be very valuable experience for young students to get to work in high profile research that has also been one important means to disseminating the knowledge of the FiDiPros and enhancing the quality of the department. Few FiDiPros were not satisfied with the quality of the research team.

Teaching

Most of the FiDiPros have had very little interaction with students, if any at all. The most common type of student interaction is supervision of PhD studies. If the FiDiPros have been involved in teaching, that has mainly been post-graduate courses. Many of the interviewed mentioned informal tutoring and helping in specific questions as the main ways of supporting students. The laboratory was mentioned as a very natural way of getting interaction with students. Few had also continued with teaching after the assignment period. That has been possible by using the possibility of remote access. It was suggested that the impacts could be strengthened by a stronger role in teaching. That could, however, be done without much effort by professors and fellows. One measure could be joint lectures by professors or fellows with the companies that are involved in the research.

Conclusions

I RELEVANCE: The extent to which the FiDiPro Programme is addressing a demonstrated need and is appropriate to the strategic priorities in the area of science and technology.

The FiDiPro programme is considered to be highly relevant by all stakeholders. There is clearly a need for the FiDiPro instrument also in the future. All stakeholders stressed the importance of a FiDiPro type of funding instrument for the Finnish science and innovation system. The internationalisation of Finnish science is still a major concern and FiDiPro is one of the key tools in developing this.

FiDiPro funding has supported well the strategic priorities of the Academy of Finland and Tekes. FiDiPro funding has been mostly targeted at existing focus and strength areas. On the other hand, targeting of the funding has not been too restrictive and also newer and developing areas have received FiDiPro funding.

FiDiPro is seen as an attractive funding opportunity for potential FiDiPro professors. The status of FiDiPro is rather high as seen by both host universities and FiDiPro professors. Its attractiveness could be mainly increased by higher flexibility or salaries and funding for projects.

The FiDiPro instrument seems to be an international benchmark for this type of funding instrument. It is referred to as an example, together with the Humboldt and Canadian Research Chairs in several European contexts. Also, from international screening it could be argued that the ambition level and scope of the instrument is rather high and the focus is on top level researchers.

II EFFICIENCY: Selection process, administrative practices and resource utilisation in relation to the progress towards expected outcomes.

FiDiPros are highly merited researchers and most of them are in the later phase of their careers. The career stage potentially diminishes the efficiency of the programme in creating sustainable long-term relationships between host and home universities.

Most of the FiDiPros had strong relationships to Finland before the FiDiPro assignment. All FiDiPros had some earlier connections to Finland and most of them had very good long-term relations with the host university. While this is understandable, it creates a question of what has been the funding's impact on creating new international connections.

Integration of FiDiPros to the activities of hosts and other stakeholders outside the particular research project varies a lot. This depends on the activities of the host organisation as well as the interest expressed by the FiDiPro. In the best cases the FiDiPro has been actively integrated to teaching activities or enterprise cooperation; in other cases the host has managed all stakeholder interaction and the FiDiPro worked only in the project.

Expatriate Finnish top researchers who have worked abroad for a long time are also eligible for FiDiPro Professor and Fellow funding. Despite some claims, this has not been an issue and FiDiPro has not work as a "return" instrument as some other international examples have done.

The model of two funders is working rather well. Different requirements and reporting guidelines of the Academy of Finland and Tekes was considered as a potential risk for the programme administration, but according to the findings of this evaluation funding, the model has not created any substantial issues.

Focusing on existing strengths and strategic priority areas has also strengthened the long-term impacts of FiDiPro funding. FiDiPro funding is mostly targeted at existing strength and priority areas. This has increased the effectiveness of the programme. FiDiPros have seen Finland in these areas as an interesting working environment also after the assignment. This has enhanced the development of sustainable and active cooperation practices between host and home universities. In less developed fields the post-assignment interaction has not been that motivating for the FiDiPro professors and the long-term impacts have been more modest.

The programme is efficiently implemented and the small resources are well utilised. Some FiDiPros and host universities raised the need for increasing programme level actions and common guidelines for the host universities so that the dependency of single persons at the host university could be diminished.

III EFFECTIVENESS: The extent to which the programme is achieving or demonstrating progress towards achieving expected outcomes

Key impacts of FiDiPro are not formed only through the outputs in single research projects but within the interaction between FiDiPro and other host activities, i.e. teaching or enterprise cooperation. For a single project the time actually spent in Finland is not relevant. However, from the larger perspective of integration of FiDiPros to the activities of the host and the larger impact of their work, residing in Finland and also carrying out other activities (teaching, project generation, etc.) seems to be important. This aspect has been emphasised in the instrument, but is not visible in all projects.

Overall, FiDiPro's impact is relatively high from several perspectives:

FiDiPro funding has increased research capabilities by providing top-level expertise for the research projects. Ninety-four per cent of host university respondents in the survey concluded that the funding was crucial in attracting international researchers to Finland.

FiDiPro funding has enabled host universities to carry out new types of research and enhance their strong research areas. Most of the stakeholders give examples of new research areas and strengthening of existing ones.

Cooperation between FiDiPro home universities and hosts has mostly continued after the FiDiPro project or is estimated that it will continue. However, quite little evidence exists in strong mobility from the Finnish host university to the home university of the FiDiPro or the utilisation of research infrastructure. In this respect, the "two-dimensional" aspect of FiDiPro, emphasised in its goals, is not realised.

FiDiPro funding has had an impact also on research practices and the working culture of Finnish universities. FiDiPro funding is not only contributing to the content of research work, but also to ways of working. FiDiPro professors have increased the publication activity within the host university. This conclusion was supported by the evidence from bibliometric data, interviews and the host survey.

FiDiPro has had an impact on the publication activity of Finnish co-authors in the host organisations. For approximately 15 per cent of six hundred co-authors the impact on publication activity is significant. This is also emphasised by the interviews with FiDiPro professors: They have placed more emphasis on the publication activities and FiDiPro co-authoring has meant the first internationally peer-reviewed paper for many young researchers as well.

Publication activity. Bibliometric analysis gives an indication that the FiDiPros have had an impact on the publication activity of Finnish researchers.

Recommendations

1 **FiDiPro should be more clearly integrated to host universities international research strategies/ agenda.** The FiDiPro instrument could be, in the best cases, one of the key instruments in the universities' or research institutions' internationalisation strategy. There are no hindrances in doing so and the exchange of experiences between host universities in this respect might provide some added value. For those hosts who have a more integrated approach to FiDiPro, have also had more added value from the FiDiPro professor and are less likely to face challenges during project execution.

2 **The FiDiPro instrument should be geared more towards younger top-level researchers.** Most of the FiDiPros are rather senior. In other international examples there also exist other instruments or different tiers within such funding instruments for younger researchers. While other countries might be looking at FiDiPro as an example of attracting top-level researchers, FiDiPro could learn from the selection practices and tier-system of other instruments. By increasing *the share* of top-level researchers who are in earlier phase of their career FiDiPro could create stronger potential for these researchers to stay and have an impact in Finland. Also, by increasing the share of those at the beginning of their Tenure Track, more synergies between FiDiPros and Tenure Track concepts could be attained.

3 **Programme level actions should be strengthened.** The impact of FiDiPro funding could be increased by increasing programme level actions. At the moment, the programme is implemented very efficiently with small resources and increasing programme level actions would also require more resources for the implementation. In practice, programme level actions could mean networking events, research seminars, etc., which strengthen FiDiPro's connections in Finland and, on the other hand, gives a larger academic audience the possibility to create interconnections with FiDiPros.

4 **The programme should encourage more teaching and interaction with students to increase the impact of the programme.** The research projects integrate into the universities' research activities very well, but often rather weak links to teaching (and minor student interaction) diminishes the effectiveness of the funding. Involvement in the teaching is an important way of creating more sustainable effects within host universities.

5 **There should be more focus on the time spent in Finland, but no strict rules to ensure the flexibility of the instrument.** Although time spent in Finland is not (necessarily) relevant from the point of view of a single research project or its scientific results, time spent in Finland is crucial for the ultimate goals of FiDiPro funding. The aim of the funding is to create new and sustainable international networks, enrich the academic culture and working methods and bring new ideas, not only to single projects but more widely to Finnish universities and society. All these goals require a presence in Finland. However, all the cases are unique and this should be taken into account by not creating too strict rules. Exceptional cases may require exceptional practices, but these should be exceptions and in the selection process more attention should be paid to potential FiDiPros' willingness and ability to stay in Finland.

6 **FiDiPro's objectives should emphasise more the two-dimensional aspect of research mobility.** This goal is currently part of the programme, but it is seldom emphasised by actual projects and hosts. In some examples, FiDiPros have even suggested visiting opportunities for younger researchers to their home university without success. Many other international instruments are more clearly geared towards the exchange as part of their objective of internationalisation. Creating rules or regulations would not be the appropriate way as it might decrease the attractiveness of the funding.

7 **More emphasis should be paid to the future in linking of the academy's strategies for developing international research funding and the utilisation of FiDiPros in host organisations.** The universities should take current and future strategies into account when utilising the FiDiPro instrument in the future. This includes the linkage between strategic researcher's funding, the forthcoming additional research funding granted to competed research of the academy and the national roadmap to develop national research infrastructures. The latter is especially important in the light of the finding in the interviews, where the cooperation between FiDiPro and host research has succeeded better if the research of the FidiPro has also been closely integrated to the research infrastructure available.

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David Thomas – FiDiPro
Francoise Winnik – FiDiPro
Hisao Yamauchi – FiDiPro
Vladimir Gelman – FiDiPro
Jonathan Knowles – FiDiPro
Juan A. Tapia – FiDiPro
Bo Stråth – FiDiPro
Benny Gerber – FiDiPro
Sumi Helal – FiDiPro
Luis Rubalcamba – FiDiPro
Pavel Jungwirth – FiDiPro
Jürgen Munch – FiDiPro
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