

Evaluation of the Austrian Industrial Research Promotion Fund (FFF) and the
Austrian Science Fund (FWF)

FWF Governance and Processes

Background report 4.1

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Summary

“The FWF is Austria’s central body for the promotion of basic research. We invest in new ideas that contribute to an advance in knowledge and thereby to further developments. We are equally committed to all branches of science and the humanities and are guided in our operations solely by the standards of the international scientific community.”

Indeed FWF governance and internal processes are very much focused on the promotion of basic research and the advancement in knowledge. FWF has a central position in promoting basic science though its budget position is not strong vis a vis the institution funding. This evaluation of the governance and processes shows that in this respect FWF does a good job through a mix of funding modes of which individual projects and network funding are the most important ones. FWF has a good peer review system, which is highly regarded by the scientific community and based upon scientific referentInnen and international peers. There are small improvements that FWF can make to its peer review system.

Nevertheless there are good reasons to assume that FWF might not maintain this position and need to adapt to the changing context. Three contextual factors should really be taken in to account:

- (1) First of all, the recent pressures by the government to merge with FFF or at least to cooperate more closely with FFF. Irrespectively whether one agrees or not with these proposals, they show that politically the government is getting more interested in FWF. The advantage might be that this will result in more funding for science as well; the disadvantage that FWF might be under pressure to fit its working within specific political schemes.
- (2) The Austrian university system – the main recipient of FWF funding – undergoes substantial reforms. As a consequence, it might be that universities develop procedures for assuring the quality of research and stimulating excellence of research – with or without the help of FWF, and it might be that the future needs of researchers and the university system for FWF funds change.
- (3) Internationalisation and especially the development of the European Research Area. Though excellent science has always be an international endeavour, because of the ERA more than ever research councils are operating at the international level as well. This results in many initiatives at the European level, and many opportunities for international collaborations.

In its current form FWF the organisation and the strategic processes are not appropriate to meet these changing contexts. Moreover it is uncertain whether FWF can sufficiently change into a research councils that fit to the new situation. This uncertainty is partly related to the contextual changes. The University reform still has to have its effects and the European Research Area is far from its ultimate shape.

We see two options for the FWF. One is to try to maintain its role as body for the promotion of basic science and leave responsibilities for such issues as university – industry relations, for strategic research, for national priority programs, to other actors in Austrian system. Even then some changes have to be made, because within such scenario FWF should develop some strategic capacity to response flexible to the changes in the Austrian research system and FWF needs to develop an international strategy to define its role within the ERA.

The other option is a shift of FWF towards a type of a research council which is responsible for the quality of the scientific research system. It will operate autonomously from both government and research organisations in order to be able to decide upon strategic interventions to optimize the functioning of the Austrian research system and helps to embed Austrian science within the knowledge society.

In both option there is a need for Austria to increase its competitive budget for research, but in the first option there is less reason to transfer these funds to the FWF than in the second option. The list of recommendations indicate whether the recommendation refers to the first, the second or to both options.

Recommendation	1. body for the promotion of basic research	2. Body for the quality of the scientific research system
Governance structure		
Austria should increase its competitive budgets for research	X	X
FWF should reconsider whether its formal governance structure is appropriate for a competitive university research system. Especially the way the Delegiertenversammlung and the Kuratorium are organised organisation-wise seems in tension with a research system in which organisational interests of universities become more differentiated		X
FWF should reconsider the procedure for the selection of ReferentInnen and make this more transparent	X	X
FWF might develop a governance model in which the council is more autonomous		X
Internal organisation		
Because of the importance of the international context for the future role of FWF, FWF should increase its organisational capacity on international affairs and create a department for this	X	X
FWF should consider increasing its staff in order to create the capacity to response pro-actively on the changes in its environment	X	X

Recommendations (continued)	1. body for the promotion of basic research	2. Body for the quality of the scientific research system
<i>Internal organisation (continued)</i>		
Because of the importance of collaborations with other agencies on programs, both for science and innovation in Austria, and for FWFs legitimacy in the systems, FWF should make these collaborations more prominent in its own organisation		X
FWF should have a unit for strategy making.		X
FWF should increase its practices to link with society, both in terms of public understanding of science as in strategic interactions with society		X
<i>Pogram portfolio</i>		
FWF should develop a clear strategy to accommodate an increase in the competitive budget, with a clear portfolio of funding schemes linked to a vision on the Austrian research system		X
FWF should reconsider its position on the Wissenschaftskolleg and find ways to overcome the risk that the three current WK networks develop in a kind of institutionally funded network, without possibilities for new comers	X	X
FWF should merge the funding schemes for SFB's and FSP's as the differences between the two are too small in a country like Austria	X	X
FWF should take the initiative to make coordinate the efforts and responsibilities on the stimulation of the careers of researchers	X	X
Responsibilities and budget for START and Wittgenstein and Herta Firnberg should be fully transferred to FWF.	X	X
<i>Peer review</i>		
FWF has a good reputation among the researchers which is strong asset and should secure the reputation in the future, by maintaining a robust peer review system	X	X
FWF should limit the cuts of projects budgets to those situation were parts of the budgets are not eligible	X	X
The differences in the periods between submission and approving of a proposal are too large and FWF is recommended make this more uniform	X	X

1 Introduction

This report is one in a series for the joint evaluation of the Austrian Fonds zur Förderung der wissenschaftlichen Forschung (FWF) and the Forschungsförderungsfonds für die gewerbliche Wirtschaft (FFF). The report evaluates the internal organisation of the FWF, the processes by which it performs its main tasks, and develops its policies, and the governance interactions with its main stakeholders. The evaluation is based on interviews with staff, board members and experts of the FWF and factual information provided by the FWF.

FWF legal task is to stimulate the research for the advancement of science in Austria, which is not aimed at commercial exploitation. Funding is meant for individual researchers or individual groups, including young researchers who want to continue their scientific career. Priorities of the government should be taken into account, but are secondary to the primary objective of the advancement of science in Austria. FWF also has a task in transfer of research towards the public. (See Textbox)

Legal tasks of FWF

(according to §2, §4, §18 FTFG)

(1) Forschungsförderung

- Förderung der Forschung, die der weiteren Entwicklung der Wissenschaften in Österreich dient und nicht auf Gewinn gerichtet ist;
- Förderung von Forschungsvorhaben einzelner oder mehrerer natürlicher Personen einschließlich der Gewährung von Forschungsbeihilfen für Forschungsvorhaben des wissenschaftlichen Nachwuchses auf dem Gebiete der wissenschaftlichen Forschung;
- Bedachtnahmen auf Grundsätze des FOG, sowie auf Planungen und allfällige Forschungsschwerpunkte der Bundesregierung. Die Förderungswürdigkeit ist dabei im besonderen nach der Bedeutung des betreffenden Forschungsvorhabens für die Entwicklung der Wissenschaften in Österreich zu beurteilen.

(2) Wissenschaftskultur und Wissenstransfer

- Unterrichtung der Öffentlichkeit über die Bedeutung der wissenschaftlichen Forschung und ihrer Förderung.
- Vorsorge für eine geeignete Verbreitung und Verwertung der Ergebnisse der geförderten Forschungsvorhaben.

(3) Sonstiges

- Widmungsgemäße Verwaltung der dem Fonds zufließenden Mittel.
- Jährliche Berichtslegung über die Tätigkeit in abgelaufenen Kalenderjahr und über die Lage der wissenschaftlichen Forschung sowie ihre für das jeweils nächste Kalenderjahr zu erwartenden Bedürfnisse einschließlich einer längerfristigen Vorausschau über die Bedürfnisse der wissenschaftlichen Forschung, insbesondere unter Bedachtnahme auf deren kulturelle, soziale, wirtschaftliche und ökologische Bedeutung.
- Berichte und Vorschläge an BundesministerInnen

Currently, in the words of its own mission statement *“The FWF (Austrian Science Fund) is Austria’s central body for the promotion of basic research. We invest in new ideas that contribute to an advance in knowledge and thereby to further developments. We are equally committed to all branches of science and the humanities and are guided in our operations solely by the standards of the international scientific community.”*

FWF’s corporate policy (see text box) formulated in 2002 elaborates this mission in responsibilities, aims, values and working procedures. This corporate policy can serve as a reference for evaluating the processes and governance of FWF. To what extent does FWF indeed meet the ambitious profile set in the corporate policy? Answering this question requires also analysis of the relation with the external world, but for the FWF itself its governance and its internal processes are the main leverages for realising the profile.

There is another reference as well for the evaluation, which are sister research councils in other European countries. Since WW II, in many European countries one or more research councils for fundamental research were established to implement a competitive funding mode for (mainly) university research complementary to the dominant institutional funding mode. Many of these research councils have improved over years their governance structure, allocation and evaluation processes and strategic capacity. Though the specific contexts of the councils differ from country to country, a repertoire of good practices have been developed for peer review, programming, evaluation, strategy development and user involvement.

The report is by and large divided in two parts. The first part describes the internal structure of the organisation, and the relationships with its stakeholders (budget ministries, other funding bodies, universities, etc.) The second part describes the allocation of resources and the related processes - especially the peer review process, which is in many ways the backbone of FWF’s functioning, evaluation and internationalisation. Each of the parts is followed by an assessment and recommendations. The two are synthesised in the summary.

These conclusions and recommendations do not only look back to how FWF has performed in the past, but try to anticipate the further development of FWF in its changing context. In the past research councils have known quite times and could get used to a specific role in the research system: the funding of bottom up defined basic research projects and programs, in order to stimulate excellent research. In some countries these quite times have gone some years ago already and research councils had to adapt. In other countries it seems that research councils can continue rather comfortably their position in the research system and related practices. For FWF there are at least three developments that make its context changing fast, putting FWF’s position and practices under pressure.

(1) First of all, the recent pressures by the government to merge with FFF or at least to cooperate more closely with FFF. Irrespectively whether one agrees or not with these proposals, they show that politically the government is getting more interested in FWF. The advantage might be that this will result in more funding for science as well; the disadvantage

might be that FWF will be under pressure to fit its working within specific political schemes. It is good to realise that the debate and decisions on the role of FWF and the organisation of its task – even though in its specific form it displayed maybe typical aspects of Austrian politics – in general is not without precedence. Other European research councils have gone through this before and have had to change practices in order to find a new and productive position in the research and innovation system. Research councils in the UK, Netherlands and Norway may be seen as typical examples.

(2) The Austrian university system – the main recipient of FWF funding – undergoes substantial reforms. As part of that reform process the autonomy of universities, vis a vis the government funding is increased, while –under the principles of new public management – this induces demands for indicator based funding, and agreements on goals and performances. Moreover the Reform may result in a more competitive system, in which researcher have to be more entrepreneurial and universities may differ in quality and profile. As a consequence, it might be that universities develop procedures for assuring the quality of research and stimulating excellence of research – with or without the help of FWF, and it might be that the future needs of researchers and the university system for FWF funds chance.

(3) Internationalisation and especially the development of the European Research Area. Though excellent science has always be an international endeavour, because of the ERA more than ever research councils are operating at the international level as well. This results in many initiatives at the European level, and many opportunities for international collaborations.

It goes without saying that as this report is focused on the processes and governance only, for a full appreciation of FWF, the reader is referred to other reports in the series and the final evaluation report of FWF and FFF.

The FWF's Corporate Policy*

“We strengthen the science and the humanities in Austria”

Our mission:

The FWF (Austrian Science Fund) is Austria's central body for the promotion of basic research. We invest in new ideas that contribute to an advance in knowledge and thereby to further developments. We are equally committed to all branches of science and the humanities and are guided in our operations solely by the standards of the international scientific community.

Our **responsibilities** are the promotion of:

- **High-quality scientific research**, which represents a significant contribution to society, culture and the economy.
- **Education and training through research**, because support for young scientists represents one of the most important investments in the future.
- **Knowledge transfer and the establishment of a science-friendly culture** via an exchange between science and other areas of society.

Our **aims** are:

- A continued improvement of science in Austria and an increasing of its international competitiveness.
- An enhancement of the qualifications of young scientists.
- A strengthening of the awareness that science represents a significant aspect of our culture.

Our **values** are:

- **Excellence:** progress in science requires the best minds. We thus concentrate our funds on projects that are of internationally recognized quality.
- **Independence:** creative research requires scientific independence. We provide the freedom to protect science from the direct influence of politics and vested interests.
- **Transparency and fairness:** trust in our working procedures is our most important commodity. We ensure that conflicts of interest are avoided and give clear information on our working procedures and the criteria on which our funding decisions are based.
- **Integration:** Science is part of modern society. We facilitate cooperation across national borders and consider ourselves to be part of the international scientific community.

Our **working procedures** are based upon:

- Assessing the quality of research solely by means of international standards.
- Treating all scientific disciplines equally.
- Paying attention to the observance of the rules of good scientific practice and of internationally accepted ethical standards
- Holding an open dialogue with all interested groups.
- Cooperating to help network different branches of society and to improve the cooperation with the economic sector
- Applying a range of different funding instruments designed to take into account the varying requirements of research.
- Continuously monitoring our operating procedures and instruments and their developments.
- Handling the finances entrusted to us efficiently and unbureaucratically.

We see ourselves as a service organization and our work as directed to helping science in Austria.

**FWF Corporate Policy; 18-11-2002*

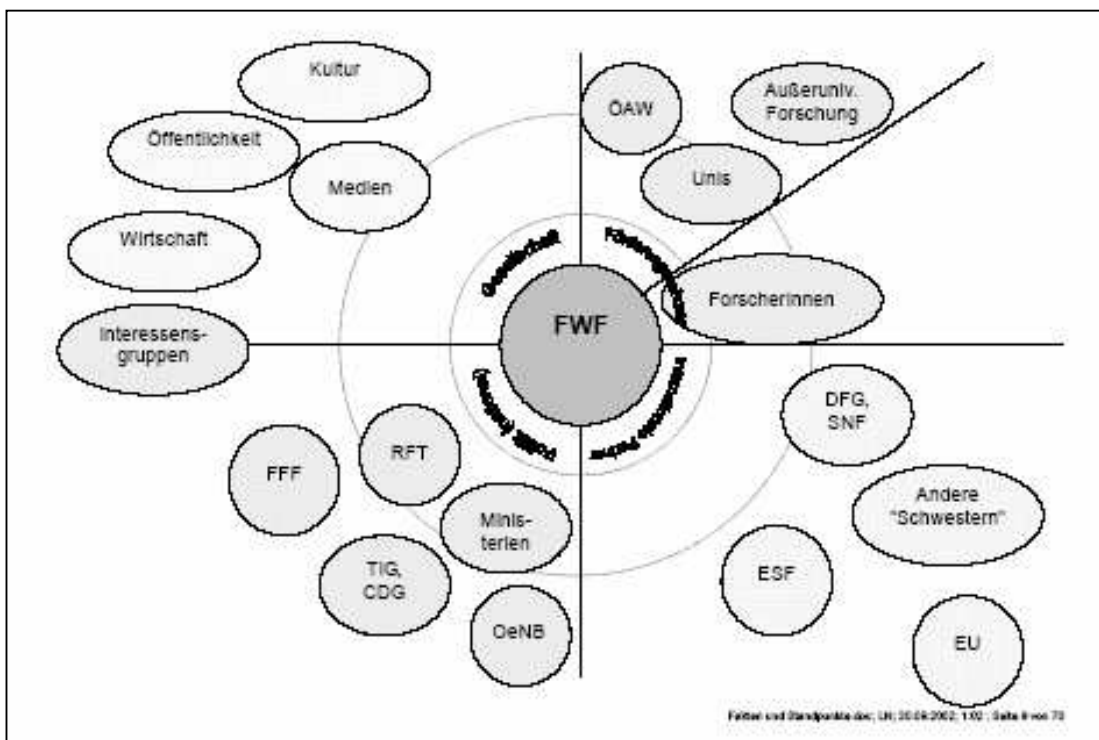
2 FWF Organisation

In many ways FWF is an organisation for and from the scientists, and in its profile and publications it puts strong emphasis on this characteristic. However, for an understanding of the organisation a broader understanding is necessary. First of all, like any research council FWF needs its bureau to handle the essential tension of any research council. That is to be an effective and efficient bureaucracy in processing proposals into funding of projects, and create stability and trust by institutionalising robust procedures on the one hand, and to be a body that anticipates upon the needs of the research system and be responsive to the dynamics of science on the other hand.

Second there is the wider environment in which the council functions and in which stakeholders operate. In its *“Der FWF, Fakten und Standpunkte”* of September 2002 - a background report for the strategic discussion that the staff initiated in 2002 – the environment of FWF is divided in four quadrants. (See figure)

1. The Research community which consists of individual researchers and research organisations (universities, Academy, non-university research institutes);
2. International Partners in research funding;
3. National politics, including ministries, the Council for Forschung and Technology, the Austrian National Bank and also FFF, TIG and CDG.
4. Society: Media, Culture, Economy, and the public.

Figure 1: FWF and its Stakeholders



This image of the stakeholder context can serve as a reference for the assessment of the organisation of the FWF as well as its processes. But we should be careful that it is was drawn recently and that most of the other documents and information of the FWF, like the corporate policy, the brochures and leaflets etc. position the FWF much more as a scientific organisation only.

Such positioning is not without consequences research on research councils in other countries has shown different possible configurations of research council, government, science and users. Internationally one can find research councils or divisions of research councils that either:

- operate as agencies of the government or specific ministries in the government;
- operate as scientific organisations, run by scientists and operating on behalf of scientists;
- operate as an autonomous organisation between the two main stakeholders and often also interacting with specific user groups.

With regard to the changes in FWF’s environment, these positions determine the council’s space to manoeuvre and capacity to response to contextual changes.

2.1 The governance structure

FWF has three legally defined bodies which govern the FWF:

- The *Delegiertenversammlung* (Assembly of Delegates) which consists of representatives of the faculties of the universities, social organisations (minority) and government and FFF (non-voting). It is responsible for the Annual Report, the Financial report and budget, it elects the Executive Board (Präsidium) and the *Kuratorium*. The DS meets annually.

Voting Members (except FWF Executive Board)	62
From the 18 Universities	50
From the Österreichische Akademie der Wissenschaften	2
Sozialpartner *)	6
Scientific Institutes	2
Non university Institutes	2
FWF Board	5
Non voting members (BMBWK, BMVIT, BMF, 2 FFF)	5
Total	72

*) Representatives from employees and employer societies.

- The *Kuratorium*, which consists of representatives of the universities, social organisations and the government and FFF (non-voting). The *Kuratorium* decides about all the matters concerning the research funding, including the final decision in the selection procedure. It’s decisions are prepared by the *ReferentInnen*, the scientific reporters, who manage the peer review procedure for the FWF. The Kuratorium meets six times a year for an approx. two-days meeting in which most of the allocation decisions are made.

Table 2 Membership of the Kuratorium

ein Vertreter jeder Universität (inkl. Kunstunis usw.)	14
ein Vertreter der ÖAW	1
wiss. Einrichtungen	1
außeruniv. Forschungseinrichtungen	1
Sozialpartner	6
Stimmberechtigt gesamt	23
nicht stimmberechtigt (BMVIT, BMBWK, BMF, 2 FFF)	5
Total	28

- The Executive Board (Präsidium), which consists of the President of the FWF, two vice presidents; the president of the Österreichische Akademie der Wissenschaften (OeAW) and the president of the *Rektorenkonferenz*. The latter two are members of the Board ex officio. The President and vice-presidents are voted by the Assembly of Delegates, but with recommendations of a search committee.
- There is a fourth group of 21 scientists, the ReferentInnen, involved in the governance structure. As Reporters they are not part of the official governance structure, but they are either members of the Assembly of Delegates or their deputies, some of them are also voting members of the board. They play a key role in the review process and allocation decisions and sit at the Kuratorium meetings as advisors. They prepare the decisions on funding of proposals. Some of the ReferentInnen are also voting member of the Kuratorium or Representatives Council. Formally, the ReferentInnen are asked by the Executive Board, but there is no clear selection procedure for the ReferentInnen. As a group they have to cover disciplinary fields in order to be able to handle the broad range of scientific areas in which applications may fall, with even some overlaps to handle possible conflicts of interest, and also be balanced in terms of universities, faculties and region. De facto this implies that if a ReferentIn resigns s/he will be succeeded by someone with a similar profile.

2.2 Cooperation with stakeholders.

The formal governance structure is the main framework through which FWF is governed and possible stakeholders can exert influence (or not). There are other ways as well. One is cooperations with stakeholders. Table 3 lists the most important cooperations with stakeholders, excluding these already formalised in the structure described above.

Table 3 Cooperations with stakeholders (excluding formal relations)

		Cooperation with FWF
	<i>National bodies</i>	
FFF		<ul style="list-style-type: none"> ▪ Exchange of staff members visiting decision meetings ▪ Impuls Programm: Postdocs for Industry ▪ Project clearing to avoid double funding
TIG – Technologie Impulse Gesel. Universities		<ul style="list-style-type: none"> ▪ Cooperation in K+ Zentren ▪ Contacts on implementation of new University Law and on development of new funding programs
Oesterreichische Akademie der Wissenschaften (OeAW)		<ul style="list-style-type: none"> ▪ Membership of FWF staff in decision bodies of OeAW Programs ▪ Collaboration on participation within European Science Foundation
Christian Doppler Gesellschaft		<ul style="list-style-type: none"> ▪ President of FWF is member of the CDG Senate ▪ FWF support CDG in selection of peers ▪ Joint use of infrastructure and collegial interactions ▪ Joint information meetings
Oesterreichische National Bank		<ul style="list-style-type: none"> ▪ OeNB funds industry oriented research projects of FWF (<i>now included in the new "Forschungsstiftung"</i>) ▪ Project clearing to avoid double funding
Wiener Wissenschafts-, Forschungs, und Technologiefonds (WWTF)		<ul style="list-style-type: none"> ▪ Debates, advises
Rat für Forschungs und Technologieentwicklung		<ul style="list-style-type: none"> ▪ FWF is member, many interactions (eg. on advise to clients)
Büro für internationale Technologiekooperationen		<ul style="list-style-type: none"> ▪ FWF is a member and has adopted the PFT's "Standards"
Plattform Forschungs-und Technologieevaluierung		
BMBWK		<ul style="list-style-type: none"> ▪ Implementation of funding programs for BMBWK: Start- und Wittgenstein Program, Herta Firnberg ▪ Collaboration of FWF representatives in BMBWK working groups on a range of science policy issues. ▪ Contacts on the Ministries own programs (e.g. GEN AU)
BMVIT		<ul style="list-style-type: none"> ▪ Responsible government body for the FWF ▪ Implementation of Impulsprogramm ▪ Collaboration of FWF representatives in BMBWK working groups on a range of science policy issues.
BMLF		<ul style="list-style-type: none"> ▪ Collaboration of FWF representatives in BMLF working groups on a range of science policy issues.
	<i>International</i>	
European Union		<ul style="list-style-type: none"> ▪ Participation in ERA Net activities
ESF		<ul style="list-style-type: none"> ▪ Membership, and participation in expert committees ▪ Participation in Eurocores activities and other programs
D-A-CH		<ul style="list-style-type: none"> ▪ Joint scheme with German and Swiss sister organization to facilitate international research
EUROHORCS		<ul style="list-style-type: none"> ▪ Participation in EURYI Award
International Programmes		<ul style="list-style-type: none"> ▪ International Continental Scientific Drilling Programme ▪ European Consortium for Ocean Drilling ▪ USA-MAT ▪ CERC3 Initiative
	<i>Society</i>	
Public media		<ul style="list-style-type: none"> ▪ Cooperation with two newspapers and magazine to increase scientific news, ORF online

From the table it is clear that most of the formal cooperation with other national bodies is within the context of specific funding programs. With the OeNB there is a specific funding relation which increases FWF budget and room to manoeuvre considerably. With the ministries there is apart from the formal governance relation, also a relation in which implementation of ministerial programs is *delegated* to the FWF itself or to FWF in co-operation with another body. Though it is not felt in practice, and decision procedures do not show so clearly, in terms of the three configurations mentioned in the introduction of this chapter, FWF acts in this respect as a government agency rather than a scientific organisation. This is not a problem per se, as the agency role seems specifically related to FWF competence for scientific management of programs. In the case of programs with broader aims, such as Impuls and K+ Zentren, FWF only has a partial role. However, it is difficult to see why there is a difference in governance relations for the START and Wittgenstein prizes and the Herta Firnberg program on the one hand, and the programs for mobility and for female researchers which are within the full discretion of FWF. In their aims, objectives, criteria, funding mode START, Wittgenstein and Herta Firnberg fit perfectly within the “Gesetzlicher Auftrag des FWF” as well as in its own mission statement.

The table also reveals the growing importance of the international context for FWF, and especially at the European level. Due to the development of the European Research Area international bodies and national bodies take numerous initiatives to improve international collaborations and in that way contribute to the development of the ERA. It is unsure how the ERA will be shaped and which of the international initiatives will prove to be viable. Funding schemes that currently are appropriate may lose their relevance over time when the ERA evolves. It might be expected that the international level will gain more significance for the governance of FWF in the near future. In fact some of the international programs seem to become more and more part of FWF portfolio, even though they are not listed so, and add another dimension to FWF.

With reference to society, the table suggests that FWF lacks almost any structure or institutionalised process to interact with society. (Note that the Sozialpartners are conceived by FWF as political bodies – and probably right so) Only on the issue of public relations, there is a co-operation with some public media, in order to increase the attention for scientific developments. Though that is good initiative, compared to other councils the investments in interaction with society are very limited, and too much oriented to “educating the people”. In a knowledge society, basic science organisations may *interact* more fruitfully with societal stakeholders. Currently, FWF has no strategy with regard to the public understanding of science.

2.3 Internal organisation

Like all research councils FWF has to combine two responsibilities in relation to its primary processes. One is the responsibility for effective and efficient evaluation of proposals and

management of the subsequent contracts. This requires well organised procedures and protocols within the organisation for this procedure and implies low task uncertainties for the staff. This responsibility is the backbone of the organisation and though task uncertainty is low, the staff needs to be qualified sufficiently to take care that the external inputs – the proposals itself, the reviews of peers, unexpected events in the course of the project – fit the procedural requirements. But procedural requirements should not be turn into bureaucratic constraints for the scientists to propose and conduct innovative research.

The other responsibility is a strategic responsibility for the organisation itself and for the science system. Research councils need be responsive to the changing needs for funding modes, e.g. in terms of new disciplines, strategic developments or failures in the science system. Such a responsibility requires another kind of attitude, one which is creative and strategic. Staff on such tasks should think beyond the own organisational boundaries and contribute to the institutional innovations. Because of the innovativeness of basic science, research councils operate by definition in a dynamic context.

Departments and sections of FWF and no. of administrative staff	
BEREICH A : FACHLICHE ANGELEGENHEITEN DER FORSCHUNGSFÖRDERUNG	
1. Wissenschaftliche Fachabteilungen	
1.1. Biologie/Medizin	(5+1*)
1.2. Geistes- und Sozialwissenschaften and Druckkosten	(5)
1.3. Naturwissenschaften/Technik and Geräte	(6)
2. Fachabteilungsübergreifende Abteilung für spezielle Förderprogramme Mobilitäts- und Frauenförderung	(5)
3. Fachabteilungsübergreifende Arbeitsgruppen für spezielle Förderprogramme	
3.1. Forschungsnetzwerke	(1)
3.2. START-Programm/Wittgenstein-Preis	(1)
BEREICH B: SPEZIELLE ANGELEGENHEITEN DER FORSCHUNGSFÖRDERUNG	
1. Abteilungen	
1.1. Presse- und Öffentlichkeitsarbeit	(3)
1.2. Wissenschaft/Wirtschaft and K+Zentren	(1+1*)
1.3. Impuls Projects	(0,1 +0,2)
2. Arbeitsgruppen im Bereich spezieller Angelegenheiten der Forschungsförderung	
2.1. Evaluation	(-)
2.2. Internationale Angelegenheiten	(-)
BEREICH C: FÖRDERUNGSVERWALTUNG UND INTERNE ADMINISTRATION	
Abteilungen	
1. Budget und Finanzen	(4)
2. EDV & Statistik	(3)
3. Recht, Organisation und Personal	(4)
4. Revision	(3)

Source: Based upon documents submitted to the Rechnungshof: "Personalverzeichnis" and "Sekretariat des FWFs"

FWF has a small staff of 45 employees, of which 11 scientific staff, who have come into the FWF after a scientific career up to post doc level. The function of scientific staff has been introduced since 1994 in order to support the *ReferentInnen* in scientific matters. But compared to peer review in some other research councils, the impression is that they still play a limited role in terms of selection of reviewers and interpretation of the reviews. As some of the scientific staff have taken up management responsibilities for some non-scientific, organisational tasks and have initiated strategic discussions, they have become important and to some extent fulfil a key role in the development of the organisation.

The bureau of the organisation is divided three departments (Bereiche).¹ The largest, "Fachliche Angelegenheiten der Forschungsförderung" manages of the research projects and all funding programs but the K+Zentren. In this latter program FWF is responsible for the scientific evaluation of the proposals and this is done by the department on "Spezielle Angelegenheiten der Forschungsförderung". The two staff members however responsible for this task are also within the first department. The second department on Spezielle Angelegenheiten der Forschungsförderung is a small department of 4-5 real staff, responsible for the external relations and includes the special work groups of which the members have their main tasks in the other departments. The third department is responsible for finances, juridical affairs, statistics and personal affairs.

Because of fluctuation in the total budget (see below) it is difficult to give a stable figure for the percentage of administrative costs in relation to the total budget. In 2001 and 2002 the budget for administration and administrative costs of international cooperation was 3.2 and 3.5 M€ respectively, which in these years equals to about 3% of the total budget. These costs do not include the full costs of the work of the ReferentInnen, and of the peer review system, which operates like most of the peer review processes in science on a professional quid pro quo basis. Compared to other councils, FWF is even compared to councils with similar missions efficient in this respect. Councils with broader missions like NWO, RCN and most of the UK councils need higher percentages of administrative costs.

¹ The number of full time equivalent related to specific agendas such as "Wissenschaft/ Wirtschaft", "Evaluation" and "International Affairs" is difficult to quantify, because staff member may work on these aspects as part of their time.

Table 4 Administrative costs of Research Councils

Netherlands	NWO	7.3%
Norway	RCN	5% (8% outsourced tasks included)
UK	BBSRC	5%
	EPSRC	5.3%
	ESCR	5.4%
	MRC	3.5%
Sweden	Vetenskapsradet	7.7%
Belgium	FWO Vlaanderen	4.3%
Germany	DFG	3,6%

Source: Synthesis report RCN evaluation, websites

Though most of the staff is working in one of the departments, at the level of the heads of departments and sections, the organisation is partly a matrix organisation in which responsibility for specific scientific disciplines is combined with responsibilities for organisational matters:

- The Head of Mobilität und Frauenförderung is also part of Biologie und Medizin;
- The Head of EDV und Statistik is also part of Biologie und Medizin;
- The Head of Biologie und Medizin is also responsible for Forschungsnetzwerke;
- The Head of Naturwissenschaften und Technik is also head of Öffentlichkeitsarbeit;
- The Head of Organisation und Personal is also part of the Recht section.

The main task of the scientific staff is the responsibility for managing the proposals and projects. The matrix organisation implies that some scientific staff has moved to other responsibilities, and can spend less time on the management of proposals. On the other hand, the matrix implies that most of the strategic issues, such as internal affairs, evaluation, statistics, public relations are also headed by the scientific staff. The combination of disciplinary responsibilities for proposals and projects as well as for other organisational affairs is seen by the staff as an asset. However there is a clear risk, as some of the staff acknowledges, that when the organisation grows, and the organisation has to take up more tasks, this combination is not possible anymore. Already now, some of the scientific staff had to reduce considerably the number of proposals to manage, because of other tasks.

2.4 Assessment and recommendations

The formal governance structure of FWF relation with its environment is strongly biased to one quadrant of the stakeholders: the Austrian research community. FWF is in many ways an autonomous organisation in the tradition of science: autonomous from the government. Within the Austrian political culture of “Sozialpartnerschaft” this seems to be a real accomplishment and an asset. Of the stakeholder groups, government and Sozialpartner are represented in the formal organisation through a small membership in the Kuratorium and Representatives Council; for the government this is a non-voting membership.

2.4.1 Governance structure

However, the governance structure does reflect the Austrian political culture of representational democracy in the large Delegiertenversammlung, the way it is constructed and in the way the ReferentInnen are chosen. The Delegiertenversammlung does not represent the scientific community as such, but the representation is strongly mediated by the organisational structures – universities, faculties, research institutes and the Academy, in which the scientific community operates. In a system where all universities are equal and extra-university research institutes can be seen as an additional group, this might not be a problem and improve trust in the organisation across the disciplines, universities, regions etc. In a competitive research system, in which universities are not equal and develop different profiles, and in a system in which basic research institutes emerge with strong scientific profiles, this might become a problem. Moreover, when FWF gets more evolved in the discussion on the development of the Austrian universities and uses the Delegiertenversammlung and Kuratorium as an arena for such discussions – which happens already - the representatives may increasingly contribute to such discussions on behalf of their organisational interests.

There are two ways to overcome this problem. One is given by the councils who are autonomous from both government and the scientific community (which won't say that scientists do not play a role in it). Councils like NWO in the Netherlands operate with a general board – of excellent scientists – appointed by the Crown and divisional boards appointed by the general board. The other possibility is given by councils like those in Germany and Switzerland where members of likewise bodies as the Delegiertenversammlung are chosen through elections.

A more competitive research system will also put under pressure the current system of selection of *ReferentInnen*. Researchers will feel that it might be advantageous to have colleagues to act as *ReferentIn*, or just disadvantageous if the *ReferentIn* is strict in not managing proposals from colleagues he knows too well. In more competitive systems, trust in an organisation like FWF may easily go if parts of the decision procedure are opaque to those affected by the decisions. So a more transparent selection process is needed, even if this implies that FWF cannot any longer balance the group of *ReferentInnen* in terms of region, discipline, organisation, gender, etc. One possibility to create the conditions for a more transparent selection procedure is:

- To allow a larger role of the scientific staff in the peer review process, which have proven their competence over the last years;
- And appoint more *ReferentInnen*, which do not have to sit (necessarily) in the Kuratorium.

2.4.2 Stakeholder interactions

With regard to the stakeholder context, FWF's formal governance structure is primarily oriented to the scientific organisations, with marginal role of political actors. Looking at the co-operations, FWF is less one-sided. There are two other contexts with which interactions seem well developed and which seem to have an impact on the governance of FWF.

First of all the international context, in which the many Memoranda of Understanding that FWF has signed with quite some sister organizations, are replaced or overshadowed by real funding programs at the international level in which FWF participates. The uncertainty of the outcome of the evolution of the ERA implies that FWF has to be involved within many initiatives and cannot be too selective. In sharp contrast with the importance of these interactions is that within the bureau of FWF internationalization is formally dealt with by an working group only, with no formal staff positions attached to it.

With regard to the context of the national bodies, FWF collaborates with some funding organisations to avoid double funding and in the context of certain funding programs. Considering the complexity of innovation processes and the role of science in innovation such collaborations are a strong asset of FWF and indicates FWF crucial role in the innovation system. Currently the responsibilities for the collaborations seem to be distributed over the organisation. In the future one might expect more of such collaborations to emerge and a need for a more systematic institutionalisation of these within the organisation.

Our position towards FWF's role in implementing the START and Wittgenstein prizes and the Herta and Paul Amirson program is different. Indeed, with regard to the legal tasks of FWF they have the "natural role" to implement such schemes. However it is unclear why these schemes should be implemented on *behalf* of the BMBWK, while FWF has implemented similar schemes by itself. The risk is that the continuation of these schemes is not depending on their impact upon the scientific development of Austria, but on other political considerations.

Furthermore, the interaction and relation with society groups is both in terms of cooperation with societal actors and in terms of the internal organisation very weak. There is a lot to gain in this respect and many other research councils provide examples of practices which could help the FWF to improve on this task.

2.4.3 Internal organisation

FWF's current administrative costs are low compared to other like-wise organisations. This seems to be mainly due to insufficient capacity to organise international interactions and activities to connect to society. In that sense, we conclude that the staff is actually too small.

The internal organisation is complex for a small organisation. At first sight, the complexity is mainly due to the Department B for *Spezielle Angelegenheiten der Forschungsförderung*.

Simplification is possible. The tasks for the review and evaluation of the K+ Zentren could be added to Department A, while the relationships with „Wirtschaft“ and the „Public Relations“ could also be subsumed under Department C. The Projektgruppen (working groups) now under Department B are not really departments, but groups of staff who work on joint, organisation-cross cutting and strategic tasks. Evaluation and International Affairs are two of such tasks that by their nature require continuous attention, and a task group is an appropriate form –though they could also be subsumed under Department A, from which most of the group members come. The form of a Projektgruppe has also been used for more temporary tasks not in the organisational chart such as the strategic process on the Future of FWF.

At closer inspection, the complexity reflects the procedural and the strategic responsibility of a research council which are distributed over Department A and B. Department's B sections on Wissenschaft/Wirtschaft as well as the Working Groups (including the ad hoc ones) work on strategic issues and organizes the interaction with two of the quadrants of stakeholders: society and international partners. Within the organisation there seems to be a growing awareness of the importance of these contexts. Interviewees acknowledged the importance of emphasising the cultural value of science and relationships with the press to communicate scientific developments have intensified over the past years. Likewise international contacts at the European level have gained importance and take more time. From that perspective Department B's tasks are crucial for the organisation and the capacity is small; probably too small if FWF wants to play a significant role in the European Research Area (which moves into rapids of which the ends are still unknown) and in the interaction of science and society (which embraces more than the cultural value of science).

With the increase in proposals and the challenges of internationalisation and the University reform, which might require a more pro-active research council, it is a serious issue whether FWF can continue with the matrix organisation and ask scientific staff to work synchronously on the two responsibilities mentioned in the beginning of this section. It seems that up to know this has been only possible because the strategic task is not yet fully developed.

2.4.4 Recommendations

- FWF should reconsider whether its formal governance structure is appropriate for a competitive university research system. Especially the way the Delegiertenversammlung and the Kuratorium are organised organisation-wise seems in tension with a research system in which organisational interests of universities become more differentiated;
- FWF should reconsider the procedure for the selection of ReferentInnen and make this more transparent;
- Some other councils have a governance model in which the council is more autonomous also in relation to the scientific community. This might be a viable option for FWF as well when the changes in the Austrian research system consolidate, but at the moment seems to be a bridge to far.

- Because of the importance of the international context for the future role of FWF, it should increase its organisational capacity on international affairs and create a department for this.
- Because of the importance of collaborations with other agencies on programs, both for science and innovation in Austria, and for FWFs legitimacy in the systems, FWF should make these collaborations more prominent in its own organisation.
- Responsibilities and budget for START and Wittgenstein and Herta Firnberg should be fully transferred to FWF.
- FWF should increase its practices to link with society, both in terms of public understanding of science as in strategic interactions with society.
- FWF should consider increasing its staff in order to create the capacity to response pro-actively on the changes in its environment.

3 Funding science

The main function of FWF is allocation of funding. Historically and analytically one can argue that in university systems with a dual mode funding in which the institutional funding is dominant, the function of research councils is not just to assure that the best research is funded, but also that it organises its allocation model in a way that it induces incentives for the whole system. There are several conditions to be met in order to acquire such a position as a research council:

1. The level of competitive funding, or Academic Separated Budgeted Research (ASBR), needs to be substantial enough in relation to the institutional funding or General University Funding (GUF). Irvine et al. have called this the ASBR index: $ASBR/ASBR+GUF$. There is rare evidence about the optimal ASBR funding – both at system level and research group level.² However at system level, for most small European countries that perform quite well in international scientific statistics, the ASBR index used to be in the early nineties between 0.2. and 0.3.³ Since then most countries have increased the ASBR budget, have made the GUF more competitive and have implemented mixed GUF-ASBR funding schemes.⁴ At research level, for the sciences it has been reported that optimal performances are to be expected if about 30% of the budget is earned through the ASBR funding or other contracts.⁵
2. Competitive funding for the researchers needs to be sufficient attractive in relation to the institutional funding. This is related to the size of the grants, the conditions attached to the grants, as well as the time investments (proposal writing) to acquire competitive funding. Most research councils work with accepted rates below 30%, towards even 10% for very competitive schemes, and some have implemented changes to the allocation decision process to re-balance the investment costs, attractiveness of funding and success rates. These changes include earmarking of the competitive funding, increase of the grant size, and additional steps in the peer review process. For research councils, there is also the related condition that their funding

² Irvine, J. , B.R. Martin, Ph. A. Isard, 1990, *Investing in the Future: An international comparison of government funding of academic and related research* Report of a Study by the UK Advisory Board for the Research Councils and the US National Science Foundation, Aldershot: Edward Elgar

³ B. van der Meulen, A. Klemperer, F. Kaiser, 1997, *Bekostiging van universitair onderzoek in kleine landen vergelijkende analyse van de omvang van directe en indirecte financiering*, Achtergrondstudie voor Ministerie van Onderwijs en Wetenschappen, Enschede: CS-WTS, Universiteit Twente.

⁴ H. Hackmann, A. Klemperer, 2000, *University Research Funding: an international comparison*, Rapport voor NWO, Enschede: CS-WTS, Universiteit Twente.

⁵ Van der Meulen et al. 1997; Discussion at OECD conference, *Science Funding in Transition – Changing Paradigms and First Experiences of Implementation*, Berlin 6-7 May 2002.

system should “compete” with other non-institutional sources of funding, like private foundations, national research programs and contract research.

3. The competition needs to be open for new “players”, in a way that those not-funded feel that it is worthwhile to try. Any peer review allocation system faces the risk that the specific criteria and procedures create an elite, which chances on success in the allocation procedure depend not only on the quality of their proposals, but also on earlier success, status and membership of the “old boys network”. Studies of peer review processes in research councils have shown that certain ways of organising the peer review process and the allocation decisions may favour established researchers over new comers, in terms of disciplines, university, status and gender – even in such a way that for some groups research council funding becomes a stable source of income.⁶

This section assesses whether FWF’s budget, funding programs and review schemes provide the necessary conditions to perform well within the Austrian research system. Report 4.2 of this evaluation contains additional data on the funding and review issues.

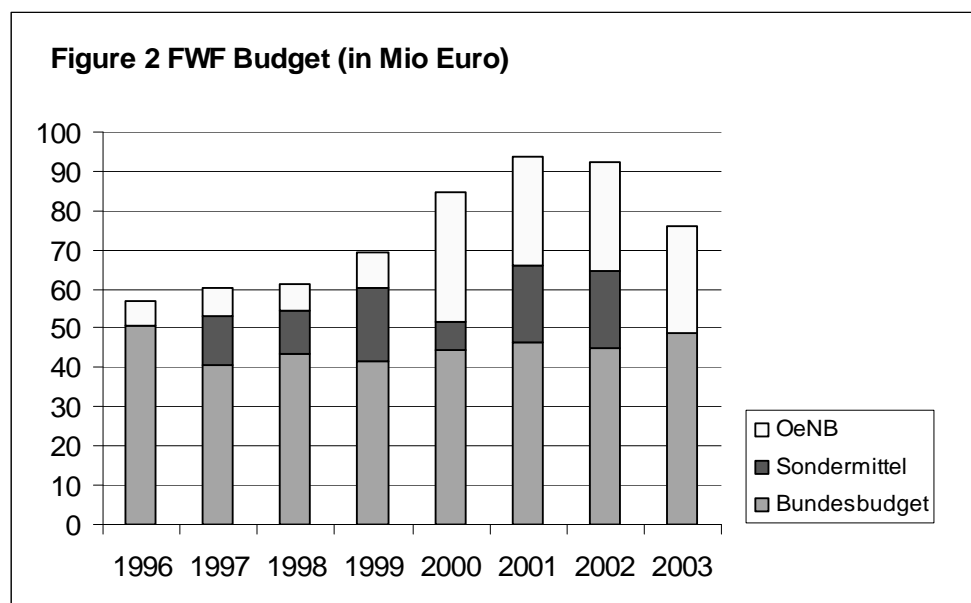
3.1 FWF’s budget and budget position

FWF’s budget over the past years consisted of three sources. The main source was the Bundesbudget provided by the government. In 1997 this budget was reduced, but complemented by so called Sondermittel (special budget), also provided by the government. Between 1996 and 2003 the sum of these budgets fluctuated between 50.9 M€ and 66 M€. Recently it was reduced from 64.7 M€ to 48.9M€, because of the discontinuation of the *Sondermittel*.⁷

The third budget source for FWF is the Oesterreichische National Bank (OeNB) Anniversary Fund. This fund, established by Austria’s National Bank, was funded in 1966 and since then has provided grants for 568 M€. Usually the OeNB earmarks a share of its annual net profit for research promotion. Besides funds that are directly granted by the Anniversary Fund (about 16% to 20% of the total amount focussed on research projects in economics, medicine, social sciences and the humanities, aiming in particular at stepping up its promotion of economics), the fund provides funding for several research organisations and funding bodies, including the FWF. In 2000 the OeNB increased its Anniversary Fund to 65,4 M€ of which 25 - 30 M€ is under the discretion of FWF.

⁶ Typical examples include the peer review by specialized disciplinary committees, and competitive funding schemes requiring networking.

⁷ These budgets are excluding the budgets for those programs of which the FWF manages only the review process for the government, as is the case for the K+ Competence centres, also excluded are funds for Start, Wittgenstein, Herta Firnberg and Implus Projects.



The allocation of these budgets is at the discretion of the FWF's Kuratorium and is based on peer review of proposals submitted by researchers. Though the funding of the OeNB and the Sondermittel are restricted to certain categories, in the actual decision making there is no difference made for the specific categories. Only, after the decision making, projects are selected that suit the criteria of the OeNB and are proposed for funding within the OeNB budget slot. In other words, though OeNB and Sondermittel have some earmarks attached, but these do not recur in the decision making process.

The Impact Analysis of JR on the FWF funding on scientific research (report 4.2 of this evaluation) shows that Austrian universities rely overall on the FWF for more than one third of their external funding, but within engineering this is only for 10-15% and for humanities and natural sciences more than 50%. Of the total university research budgets, 80% is general university funding and 15% is from the government through public research funds and public research contracts. In other words, if we assume that the latter category comprises all ASBR, the ASBR index for Austria is around 0.16.

The analysis of the position of the FWF in relation to other research funding⁸ shows that in general the alternatives for FWF project funding are negligible, fragmented and heterogeneous. Only three sources really compete with FWF. This is the contract funding from the Bundesministerium, the OeNB and the GEN-AU program of BMBWK on genomic research. On the international level the European funding becomes increasingly important –

⁸ Report, Die Positionierung der Förderprogramme des FWF gegenüber anderen Instrumenten der Forschungsförderung in Österreich - This Evaluation

also for funding of basic research. The study by SPECTRA⁹ on the position of FWF, shows that 70% of the respondents (n= 3147) from those applying for funds at the FWF also applies at other funds. Of these the Jubiläumfonds der OeNB is the favourite one especially in the medical sciences. In the humanities and social sciences the Bundesministerien are important other sources. In science and engineering, the EU is an important other source and to some extent also the FFF. None of the other sources is evaluated to be significantly better as a funding body as the FWF. The OeNB, the Bundesministerien and the EU are seen as worse than FWF. The FFF is seen as good as FWF. The research councils from Germany and Switzerland are however seen as performing better. Reasons are not indicated.

The findings converge on the result that FWF has a central position in the Austrian research system in terms of competitive funding, but this position is relative to the institutional funding rather weak. Moreover, FWF has to face fluctuations in the total funding, which might limit its possibilities to develop longer term funding strategies.

3.2 Allocation of the budget to programs and projects

Most of FWF's budget is allocated to individual research projects and research networks but the total funding portfolio is much broader. Until 1990 the funding portfolio of FWF consisted of Research projects, Joint Research Programs (Forschungsschwerpunkte) and Publication costs and the Schrödinger program. Since the number of funding schemes has increased substantially. On the one hand this reflects FWF's responsibility for the functioning of the Austrian research system has developed from funding excellent research to more specified responsibilities such as creation of critical mass within the Austrian research system, improve the gender balance, facilitate international mobility, provide better conditions for excellent researchers within universities and improve interactions with industry. This is in line with developments in some other countries, in which research councils also have broadened their funding portfolio with like wise programs. But not to such an extent and in a way as FWF has done.

On the other hand it raises questions about fragmentation and efficiency of these funding programs, as well as whether there was a systematic strategy behind the development of this portfolio. We have not found such strategy, and FWF seems not having the "strategic intelligence" on the dynamics of the Austrian research system to develop a portfolio which reflects a vision on the Austrian research system and identifies the needs for specific incentives. Instead the development of the portfolio seems to be a matter of ideas for funding modes raised within the council and/or seen at sister organisations. For each funding mode there has been consultation with relevant stakeholders, there is no overall check of the quality of the portfolio. Also lacking is a view on appropriate levels of funding for each of the categories. For the small funding schemes, it might not be necessary to determine such levels

⁹ SPECTRA, 2002, *Die Position des FWF*, Report commissioned by the FWF, nr. O-6802.

ex ante as these levels are relatively small and one can indeed argue that the level of stimulating “Nachwuchs” should follow the existing.

Year	Program
1967	Forschungsprojekte; Druckkosten
1972	Forschungsschwerpunkte
1984	Erwin Schrödinger Stipendien
1992	Charlotte Bühler Stipendien; Lise Meitner Stellen
1993	Spezialforschungsbereiche; Wissenschaftskollegs
1996	START; Wittgenstein
1997	Impulsprojekte
1998	Herta Firnberg Stellen
2000	Erwin Schrödinger Rückkehrstellen
	International Programs: EUROCORES; EURYI Award; ERA-Net
2003	Nano Initiative

This is different for bottom up research projects and network funding. It is unclear whether the current ratio between individual projects and network funding of 3.5:1 is the most appropriate for the advancement of science in Austria. It is an outcome of individual decisions of researchers to apply for funding and of separate decisions of the Kuratorium based on judgements of peers who have looked only at individual proposals. Though for the dynamics of research systems it is necessary that research councils are responsive to needs of researchers, this doesn't necessarily imply that it should follow these in all respects. Since 1986 the funding for both categories has increased, but there are indications that the network funding stabilises while the growth in individual project funding will continue.

	1996	1997	1998	1999	2000	2001	2002	2002 %
Forschungsprojekte	35.43	43.20	50.59	54.28	56.45	60.82	66.79	75.4
Forschungsschwerpunkte	8.01	3.29	3.51	4.10	3.61	0.56	4.20	4.7
Spezialforschungsbereiche	8.72	7.70	9.46	15.28	22.04	17.35	10.24	11.6
Schrödinger Stipendien	3.20	3.92	3.41	3.10	3.30	3.29	4.28	4.8
Meitner-Stipendien	0.53	0.45	0.33	0.55	0.77	1.01	2.12	2.4
Bühler-Stipendien	0.49	0.48	0.29	1.11	0.70	1.02	0.27	0.3
Druckkostenbeiträge	1.16	0.70	0.94	0.78	0.78	0.70	0.70	0.8
<i>Total</i>	57.54	59.75	68.54	79.20	87.65	84.75	88.60	100

Statistik Heft 2001, SH 2002,2003

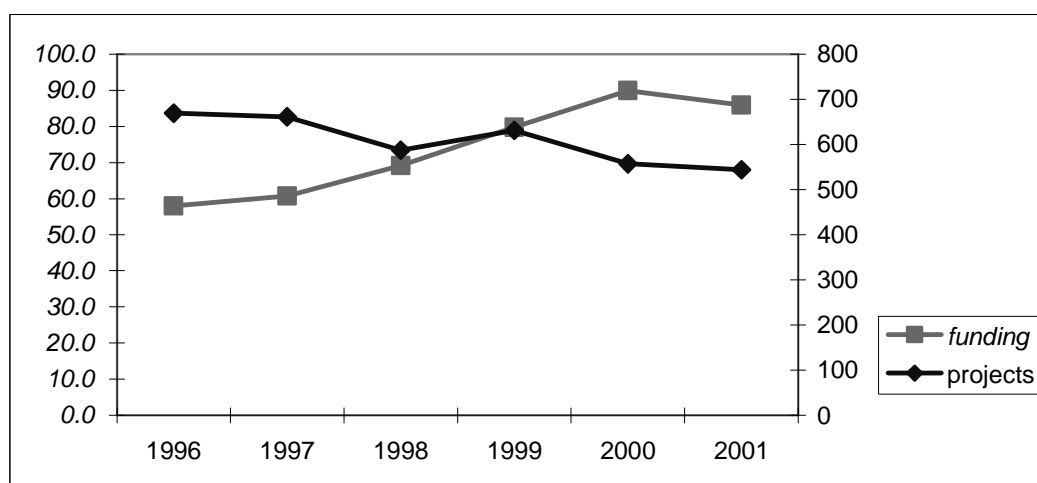
Table 7 Aims and objectives of FWF's funding categories

	Target group	Objectives
Einzelprojektförderung	Scientists	Funding of excellent individual research projects not oriented at financial profit
Drückkosten	Scientists	Promotion of the publication of scientific work
<i>Research Networks</i>		
Forschungsschwerpunkte	Scientists at universities and public research institutes	Promotion of the establishment of "priority" research areas, by building up nation-wide research networks
Sonderforschungsbereiche	Groups of scientists of international standing at a university or research institutes	Establishment of extremely productive research centres at a single university for long-term and interdisciplinary research.
Graduate Programs	Groups of excellent scientists collaborating within thematically defined framework;	Establishment of centers for the education of first-rate young scientists, in scientific areas where the productivity in Austria is exceptionally high.
<i>International Mobility</i>		
Schrödinger Fellowships	Young, highly qualified scientists under 35.	<ul style="list-style-type: none"> ▪ Promotion of scientific work at leading foreign research institutions ▪ Facilitation of access to new scientific areas and methods, to contribute - following return to Austria - to the further development of science in Austria
Schrödinger Follow up	Post-docs who have spent at least two years researching abroad and wish to return to an Austrian research institution but have no position	Facilitation of re-integration into the Austrian research career path following a stay abroad
Lise Meitner Program	Highly qualified scientists aged under 41, from abroad who want to work at an Austrian research institution.	<ul style="list-style-type: none"> ▪ Strengthening of the quality and the scientific know-how of the Austrian scientific community ▪ Creation of international contacts
<i>Promotion of Women</i>		
Hertha Firnberg program*	Highly qualified female scientists of any scientific discipline aged under 41	Improvement of the career prospects for women in universities
Charlotte Bühler Program	Highly qualified female scientists who are hoping to complete Habilitation	<ul style="list-style-type: none"> ▪ Promotion of future female university lecturers in Austria
<i>Outstanding Researchers</i>		
START*	Outstanding young researchers aged under 36	Long-term and extensive financial security to plan their research and to build up own research groups
Wittgenstein*	Outstanding researchers aged under 51.	To guarantee excellent researchers the greatest possible freedom and flexibility in the performance of their research
<i>Cooperation with Industry</i>		
Impulse Projects**	<ul style="list-style-type: none"> ▪ University graduates ▪ Austrian companies 	<ul style="list-style-type: none"> ▪ Improvement of knowledge transfer ▪ increasing the number of firms in Austria that perform R&D

*On behalf of the BMBWK; ** On behalf of BMVIT, in cooperation with FFF

The analysis of the database of the FWF¹⁰ and the 4242 applications for projects and network funding indicates that while the approval rate of large projects is substantially higher than for small projects. For the very large grants this is not so much due to the size but to otherwise favourable conditions for the approval rate, viz. that they are from the Natural Sciences and coordinated by a professor. Since 1996 the average size of the grants has increased as the increase of FWF's budget goes with a decrease in the number of projects. However if we look at the funding rates, that is the rate of funding for approved projects, we find opposite indications. FWF has a strong tendency to cut on the funding and not grant the whole requested sum. The average size of the applications for FWF funding is in the range of 175-210 k€ for the natural and engineering sciences, medicine and agriculture and around 150 k€ for social sciences and humanities. Such applications are on average cut to about 80% of the applied budget. Larger proposals above 350 k€ even face cuts to 65% of the budget applied for.

Figure 3: Development of FWF budget and number of projects



3.2.1 Individual projects

Individual projects are the most important funding mode of FWF in terms of numbers of projects and in terms of the funding. The SPECTRA report reveals that it is also the funding category which is seen as the most valuable one by the researchers. The analysis of the FWF database¹¹ looked for characteristics of a typical FWF project. Beside the scientific quality of the research proposal which is assessed by scientific peers, there are some other dimensions

¹⁰ Joanneum Research, Evaluation of FWF funding for scientific research, Report this Evaluation.

¹¹ Idem.

that play a role, but there seem to be no projects which are either natural losers or natural winners.

The survey among researchers gives a further insight in the role of the projects for the advancement of science. Proposals are used more often to extend already existing main research activities and less to establish new research activities at the research unit. The overwhelming part of all submitters holds their application as part of a long-run research strategy within research unit. 80% of all respondents agreed that the project idea existed for some time. Only 25% of the approved proposals and 33% of the rejected proposals were developed out of a necessity to acquire additional funding. From the analysis of the survey it is concluded that FWF funding is based on existing research foci and is used in order to strengthen specific research orientations.¹²

At the level of the research system, the project funding typically complements university institutional funding and gives incentives for high quality research, which were not present in the institutional funding. Good university research is rewarded. For the future of FWF and the development of its portfolio the current size of the funding for individual projects might be less appropriate, despite the strong support for this funding among individual researchers. It is likely that, with the implementation of the University Reform, quality incentives will be related to institutional funding. In other words, there will be less reasons for FWF to fund such individual projects, if they simply continue existing research lines, of which the quality is approved in other ways. FWF will then be in a similar situation as research councils in the UK and the Netherlands, where strong quality control is related to the institutional funding, and research councils allocate funding much more strategically than through individual bottom up defined research projects.

3.2.2 Research networks

Between 1991 and 1994, two programs for research networks were added to FWF portfolio: (1) the Special Research Programs (Spezialforschungsbereiche), which funds interdisciplinary research programs at a single location for a maximum of 10 years; and (2) the Graduate Programs (Wissenschaftskollegs), which funds research centers with the specific aim of training excellent young scientists at PhD level. The Special Research Programs (SFB) have gained considerable importance, and the accepted sum for SFB's increased between 1996 and 2001 from 8.72 and 17.35 M€. At the end of 2001 a total of 17 SFB's was running. The accepted sum for the Joint Research Programs decreased in the same period from 8.01 M€ to only 0.7 M€. In the 2001 7 of these programs were running. The number of funded Graduate Programs is only three, which is due to the strict conditions for the program. Rather than aiming at improving the graduate education in general in Austria, the aim of the program is to

¹² The questionnaire results cover applications for individual projects and network funding, but the first outnumber the latter by far.

establish such education in only those areas of Austria where it has a leading international position.

In 2002 no new research networks were established. Of the six early applications five were turned down because they did not meet the program criteria. Reviews of the sixth application were insufficient to continue the creation. In the same year 7 existing networks were continued. In 2003 four new networks (2 SFB and 2 FSP) were accepted. Of these four new networks, three came from institutes with no previous involvement in networks, and one from an institute that coordinated also another research network. Of the first three, one is coordinated by a professor coming from a research centre of excellence involved in one of the Graduate Programs.

As the Research Networks aim at the establishment of a critical mass of excellent research, we analysed whether they function as accumulation points for FWF funding as well. For the Forschungsschwerpunkte and Sonderforschungsbereiche we analysed the project history of the coordinators. The 9 coordinators of the 8 FSPs running in 2001 and 2 accepted in 2003, together had a project record of 15 Research projects and three Publication grants. One of the coordinators had 2 FSP's. The 20 coordinators of SFB had together a record of 27 Research projects, 2 START prizes and 2 Wittgenstein prizes. In general this does not indicate a substantial accumulation effect within the FWF funding at the individual level. However, the FSPs that started between 1999 and 2002 show a concentration of resources: two coordinators have a record of 4 Research projects; one has 1 Research project and a Wittgenstein prize, one has a Research project and a START prize and one has two Research projects, a START prize and a Wittgenstein prize.

A more detailed analysis was made of the three Graduate Programs, which really aim to establish elite PhD programs. Of each of the Graduate Programs, the project records of those researchers involved in the Graduate Program were counted, as well as the project records of the institutes involved in the Graduate Program. Names of those involved were acquired through the short description of the Graduate Program in FWF's database and through the staff lists at the website of the Graduate Programs. These Graduate Programs are accumulation points for FWF funding, but at the network level.

The Wissenschaftskolleg on Signaltransduktion and Zellzykluskontrolle is a collaboration of the institutes at the Vienna Biocenter (VBC). The VBC PhD program, which is partly funded by the Wissenschaftskolleg funding of FWF is a collaboration of two institutes, several university research groups of the University of Vienna and a commercial institute cooperate. It has a total staff of 35, of which 31 are eligible for FWF funding. These 31 staff together have a project record of 72 Research projects, 1 Schrödinger fellowship, 1 Publication grant, and 5 Wittgenstein prizes. The institutes involved in the VBC PhD program have acquired 161 Research projects, 2 Specialforschungsbereiche, 54 Schrödinger fellowships, 6

Wittgenstein prizes, 1 Lise Meitner fellowship, 4 Firnberg fellowships and 2 Charlotte Bühler fellowships.

The WissenschaftsKolleg on Computergestützte theoretische Materialforschung is a collaboration of four research groups of the University of Vienna and the Technical University of Vienna. The 8 staff mentioned in the project description have a moderate project record of 17 Research projects and a START prize. The four institutes involved in the WissenschaftsKolleg have together a project record of 95 Research projects, 2 Forschungsschwerpunkte, 9 Schrödinger fellowships, a Lise Meitner fellowship, a Firnberg fellowship, 2 Charlotte Bühler fellowships, 2 Impulsprojekte

The WissenschaftsKolleg on Differentialgleichungsmodelle in Wissenschaft und Technik is a collaboration of mathematical research groups at the University of Vienna and Technical University of Vienna. The project description and home page list together 9 staff members, who have together acquired 14 Research Projects, 3 Wittgenstein prizes, 2 START prizes, and 1 Schrödinger fellowship. The institutes involved have together 56 Research projects, 14 Schrödinger fellowships, 6 Lise Meitner fellowships, 3 Wittgenstein and 2 START prizes and 3 Publication grants.

Interesting enough, the main researchers in the latter two graduate programs are also members of the Wolfgang Pauli Institute in Vienna, which was set up by Wittgenstein and START prize winners to create a critical mass in research, science education, grants and fundraising and professional services to foreign researchers. Its general mission is to create an international recognized centre of excellence in Vienna.

In the SPECTRA survey the appreciation for the network programs is not high. Only 56% of the respondents find the SFB and FSP very valuable. The appreciation of the WissenschaftsKolleg is even lower and only a third of the respondents considers this funding instrument to be very valuable. Moreover only 24% knows about this funding. Remarkably, Austrian scientists seem to find small individual projects more attractive than larger grants to set up collaborations with colleagues and create nuclei and networks of excellent research.

This low appreciation for network funding is in contrast to the important function these funding schemes can have for the implementation of the Universitätsreform. Internationally, larger grants from research councils are seen as a way to provide excellent researchers conditions for autonomous scientific work, without being too much troubled by pressures of the competitive system. They also seem to contribute to the development of critical mass and allow for accumulation of funding necessary to create a more competitive system. In that respect, FWF should feel more responsible to act upon to the stagnation of new networks. If these networks make major contributions to the advancement of science in Austria, it is within its mandate to be more active to induce such networks.

FWF expects that the number of Wissenschaftskolleg will remain very limited by the nature of the scheme and the strict criteria. Clearly, this high entry level contributes to the success of the scheme in creating international scientific excellence on these issues. However, there is a risk as well for FWF. If indeed the current initiatives are de facto the only groups excellent enough to be rewarded with a Wissenschaftskolleg, there is no real end to the funding, and this funding mode may easily turn into de facto institutional funding. An indication that this might indeed happen is that for the first Graduate School, the funding of FWF is not specifically mentioned in its presentation. It is part of the overall resources of the Graduate School. If no new Wissenschaftskolleg will emerge and FWF wants to keep strictly to the high international standards, FWF needs really to consider how it can assure that the scheme remains dynamic and flexible.

The difference between the Sonderforschungsbereiche and Forschungsschwerpunkte seems negligible. As such it is somewhat puzzling that the *Schwerpunkte* aims to establish networks while the *Bereiche* creates a local concentration of excellent research. But in a small country like Austria one might also wonder how large the principal difference between these two is. As only 0.7% of the total budget was allocated to FSP's there seems to be no reasons why this scheme cannot be included in the Sonderforschungsbereich.

Currently an evaluation of the network scheme is underway which may provide for a more detailed analysis of these funding schemes and their role in the research system, and possibilities for further action.

3.2.3 Career schemes (Nachwuchs)

A major development in the funding categories of FWF has been the extension of career awards for the Nachwuchs of researchers: These are foremost the mobility schemes and schemes for supporting female researchers, but the two individual prizes can also be considered as such. Between 1991 and 1994, the Bühler-grants and the Meitner-grants were implemented. The first provides a 1-2 year grant for female researchers under the age of 40 to complete a *Habilitation*, (a professorial examination) in order to promote the number of female professors at Austrian universities. The latter provides scientists from abroad under the age of 40 with a grant of a year to come on invitation to work at an Austrian university. In 1996 the Firnberg fellowships were added to FWF's portfolio. The Hertha Firnberg program aims to improve the career prospects of young female researchers. Since 1996, also the Wittgenstein and START, - both funding programs for excellent researchers- were implemented.

Of the career schemes only the two Schrödinger, the Meitner and the Bühler Stipends are allocated out of the budget of the FWF. In total these schemes cost about 6% of FWF's budget. In 2001, 105 Schrödinger fellowships, 23 Lise Meitner positions and 22 Charlotte Bühler Stipends were financed by the FWF. In 2002, 125 applications for a Schrödinger

fellowship were managed, of which 87 (73%) were accepted. For Lise Meitner the acceptance rate is 43%, that is 33 of 75 applications were accepted in 2002. Applications for the Charlotte Bühler Stipends are reducing. In 2002 3 applications out of 10 were accepted. In 2001 FWF received 13 applications and in 2000 18.

One may wonder whether FWF needs seven of such career schemes, especially as the the Oesterreichische Akademie der Wissenschaften (OeAW) runs also career schemes for scholarships of which the objectives and target groups partly overlap with those of the FWF. As both organisations have a national role in the research system, it might be more efficient to the researchers if one of these organisations would be responsible for this kind of scholarships.

DOC	Grants for excellent PhD students
DOC FFORTE	Grants for excellent female PhD students in science, engineering and medicine
APART	Three year grants for excellent researchers at post-docs level
APART Extra	Three year grants for excellent researchers at post-doc level who have had an alternative research career. The scheme aims especially at female researchers with career breaks.
Max Kade	Scholarships for research stays of a year in the US

For each of the programs one can also question whether FWF should have the responsibility instead of the universities. The reduction of the applications for the Charlotte-Bühler-Program indicates that this program scheme does not really serve a need. It might also be that those female researchers, who could apply for this fund, are getting already project money from the FWF. Unlike other councils, FWF's procedure seems not to constrain women in acquiring funding. On the contrary, the database survey done in the context of this evaluation shows the proposals from women have little higher chance to be accepted than those of men.

Reduction of the schemes is not just a matter of efficiency. In the same period that the number of schemes increased, the total funding increased as well, while the number of projects reduces – indicating that the size of the grants have increased. Also, most of the schemes are handled in similar ways of the Research projects. Only for the Wittgenstein and START separate juries have to be set up.

Reduction seems most of all a political issue, and one that should be done in consultation with OeAW, the BMBWK and the universities. In the assessment of the number of funding schemes, one should also take into account the accumulation effects at network level. The analysis of accumulation at the Graduate Programs, one can see that a broad portfolio of funding schemes may serve the development of critical mass as well as the maintenance of it through creating opportunities for young researchers to enter the excellent networks. For the

START and Wittgenstein prizes, one should take into account the publication effect for science that such prizes generate.

3.2.4 University – industry

FWF is involved in two schemes for promoting the interaction between universities and industry. For BMVIT, FWF runs the Impuls scheme, which aims at transfer of research between universities and industry, together with FFF that does the economic assessment of the firms involved. Since its inception, 74 applications were sent to FWF, of which 6 were taken back by the researchers and 21 were declined. In 2002 the first set of 24 finalised Impuls projekte was evaluated ex-post, of which the outcome was positive.

The other funding scheme FWF is involved in, is the K+ Zentren scheme also of BMVIT, run by the Technologie Impulse Gesellschaft (TIG). The *Kplus* program aims to improve cooperation between the business and research sectors through the establishment of competence centres, for a period of seven years. FWF does the evaluation of the scientific quality for this scheme, but bears no overall responsibility.

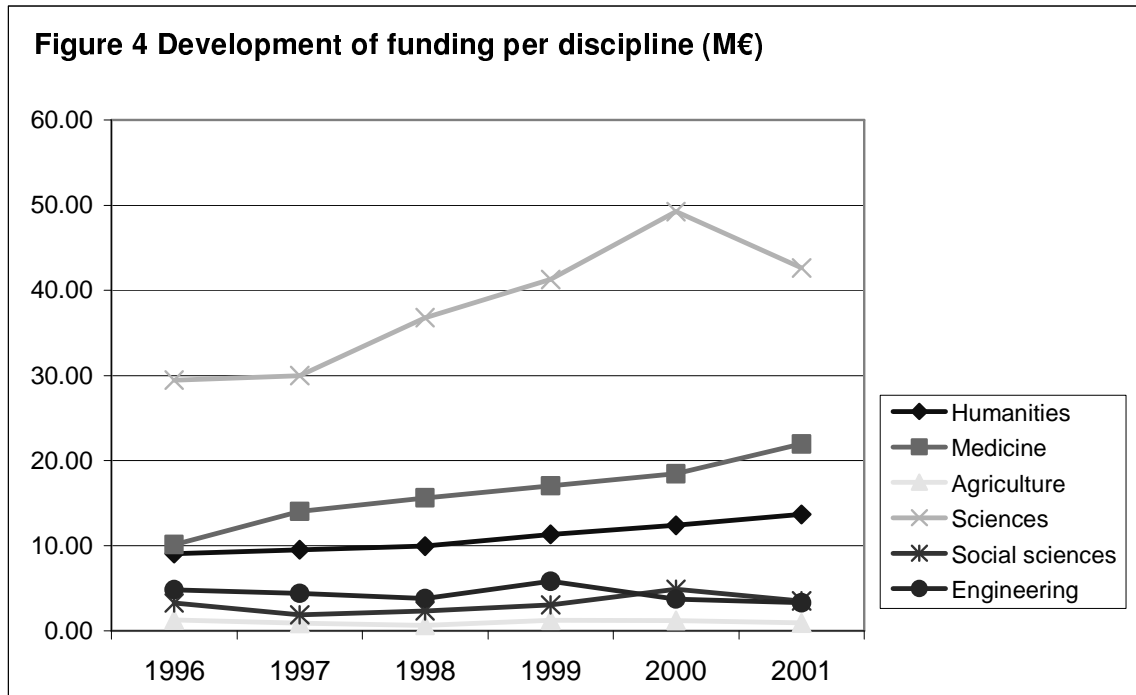
Though limited in the amount of funding and number of projects, for the future of FWF the involvement in these two programs may create a precedence for other collaborations in this field.

3.2.5 Allocation to disciplines

FWF in its decision processes does not make a difference to disciplines. Unlike many other research councils there is no a priori distribution of the funds over different disciplines. The actual distribution depends on the number of applications, and their total sum and the acceptance rates for these disciplines. Despite this strong bottom up principal, there are clear trends in the development of distribution per discipline. Most of the funding goes to sciences, followed by medicine and humanities, the two disciplines that have grown in importance steadily. The sciences got more than 50% of the funding in 2000, and a bit less than 50% in 2001. Medicine has grown to a funding position of more than 25% and Humanities to more than 15%. Social sciences, engineering and agriculture have marginal positions in FWF's budget. For social science, this is expected to change, as the budgets of the Bundesgovernment for social research have been cut, and social scientists will be more in need for FWF funding than before.

The low position for engineering is remarkable as the engineering sciences have made considerable progress in the past decades and have grown to the basic sciences. Internationally one can see increasing budgets for the engineering sciences, also because of funding for typical priorities at the end of the 20th C, like ICT, biotechnology and materials science, and, currently for nanotechnology and genomics. Again, one may question whether

the choice of FWF not to steer top down on certain developments in science fits easily with its task to promote the advancement of science in Austria.¹³



3.3 Peer review processes

Peer review is a basic issue for all research councils and practices by all research councils. But it is not homogeneous practice, similar in all councils. In practice there are three main points of difference between the councils¹⁴:

1. Choice about the number of stages in the peer review process. Peer review may be a one stage process, within an academic community, without external advice. In other cases, advice is first taken from other peers by mail or by electronic means and then this advice is considered by a committee. There are occasions when the judgements made in this second stage are subject to review at another level, for example in order to assure comparability across committees from different disciplines. Sometimes pre-selection round for project ideas are build in, to increase the approval rate for the full proposal.

¹³ The allocation pattern to disciplines must be interpreted with some care, as it might be partly due to the Austrian categorization scheme for scientific of disciplines, which is provided by the "Statistische Zentralamt (OeStat) According to this scheme projects that might be seen as engineering sciences in other countries, are in Austria included in science disciplines, e.g.: ICT is distributed among Mathematics and Informatics, Biotechnology figures under "biology" frequently.

¹⁴ See: Guidelines for Managing with Uncertainty in the Funding of Research, Report from STRATA Accompanying Measures – MUSCIPOLI, August 2003.

2. Selection of external reviewers: If used, there are different methods for their selection. They may be chosen by the council's professional staff, drawn from pre-selected colleges of reviewers, or chosen by the members of the academic review committees.
3. Different weighting given to the actors and stages in the peer review process. In some cases, the judgements of external mail reviewers are decisive; in others they only provide advice. Academic committees sometimes only perform an advisory role, with decisions taken by professional staff.

In FWF, most of the allocation decisions are based on reviews of the applications by peers, who are selected by the ReferentInnen. The number of peers ranges from 2 for applications less than 240 k€ to 5 peers for applications above 480 k€.

The procedure for the peer review is straight forward and similar for projects in all disciplines and other funding schemes that FWF has implemented itself. The administration checks the application on appropriateness and then sends it to one of the ReferentInnen. S/he decides whether the proposal is within his or her competence, and whether there are any conflicts of interests. Subsequently peers from abroad are asked to review the proposal and give a score on a scale from 0-100. Reviews and scores are collected by the ReferentIn, who uses it to make a proposal to the Kuratorium. Applications can be sent in throughout the year, and six times a year the Kuratorium meets to decide on those applications that have gone through peer review.

The overall approval rate of project proposals is high for research councils. In 2001 they were 54.1% for the sciences, 59.2% for humanities and social sciences, and 45.2% for the life sciences. While internationally, approval rates for research councils tend to drop and research councils develop new procedures to manage low acceptance rates, for FWF the rates are rather stable. Many councils cope with approval rates below 30%, which is often seen as the bottom line.¹⁵

There are some disciplinary differences, but these are not substantially. For humanities and social sciences they are between 50-60%, for biology and medicine around 50% and for the sciences and engineering between 50% and 60%. Only the latter category shows a steady decrease from 60 to 50% between 1997 and 2001. The analyses of the database gives however a different result, with acceptance rates for social science and agriculture of 34% and 35%. The database includes individual projects and networks, which might explain the difference.

¹⁵ Note that in the second half of 2003 the approval rate dropped towards 30%: in the second Board Meetings of 2004 it was about 27%.

Table 9 Approval rates for research projects

	Requested funding	Number of proposals
1997	46,2 %	58,8 %
1998	36,9 %	50,4 %
1999	40,9 %	53,4 %
2000	42,7 %	52,9 %
2001	40,4 %	50,8 %
2002	40,6 %	49,3 %

Statistikhefte 2001, SH 2002

Figure 5: Scores given to proposals per FWF department

source : *Fakten und Standpunkte FWF*

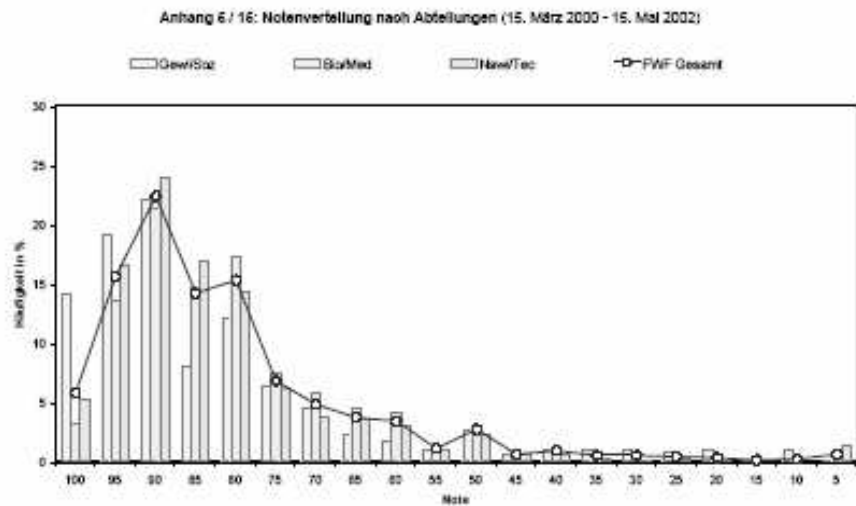
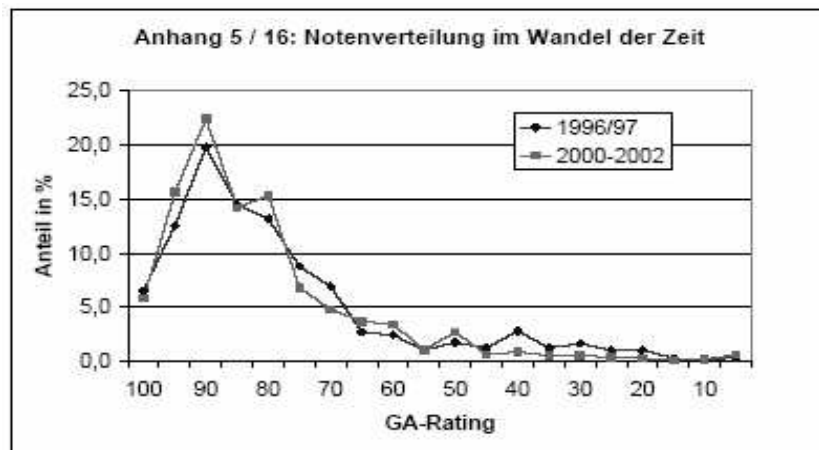


Figure 6: Scores given to proposals in 1996/97 and 2000-02

source : *Fakten und Standpunkte FWF*



The acceptance rates imply that in principle most proposals with a high score in the peer review process can be funded. In the social sciences 55.5 % of the proposals get a score of 90 or higher. In the life science 52% gets a score of 85 or higher. In the sciences 58% of the proposals get a score of 85 or higher.

The review criteria that are used by FWF are:

1. Scientific quality of the project
 - a. Position in the appropriate international scientific community
 - b. Extent to which the project could break new ground scientifically
 - c. Importance of the expected results for the discipline
 - d. Clarity of the goals
 - e. Appropriateness of the methods
 - f. Quality of the cooperations
2. Scientific quality of the scientists involved
 - a. Scientific qualifications and/or potentials of the scientists involved
 - b. Expected importance of the project for the career development of the participants
3. Financial aspects
 - a. Appropriateness of personnel and non-personnel costs of the worthwhile parts
 - b. What cuts could be made without jeopardizing the success of these parts
 - c. Suggestions for improvement to the equipment requested
4. Other suggestions to increase the projects chance on success.

The SPECTRA survey also asked about the perception of researchers of what were important criteria used by FWF and which criteria should have more emphasis. Scientific quality was first in both questions, emphasising the scientific mission of FWF. Researchers perceived as important criteria also whether applicants had international publications, successful earlier work, topicality, originality and experience and presentation. They asked for more attention for the originality of a proposal and the interdisciplinarity. Less relevant than it is now should be the experience of researchers in applications.

In general the SPECTRA survey showed that 42% of the researchers agree completely with the statement that the anonymous international peer review is appropriate; 28% agrees completely that the Referentensystem the right organisational principle is for the FWF procedure; and only 11% agrees completely that the Decisions are transparent.

Criticism is on the length of the review and decision process. 42% of the researchers responded that the review and decision process took too long. For research projects this period grew between 2000 and 2002 from 4.67 month to 5.17. For printing costs applications it took indeed longer (around 7 months) and for assessment of proposals for career schemes it took less (3.8 months)

Year	Research projects	Printing costs	Career schemes	Average
2000	4.67	6.71	3.86	4.77
2001	4.63	6.80	3.46	4.67
2002	5.17	7.22	3.83	5.12
Range for 2000-2002* (days)	119-185	87-114	178-449	

* range of the averages per ReferentIn

Of the researchers who were critical on the length, 71% had experienced a review and decision process that took more than 6 months, above the average. 7% had experiences with review process below the average. This indicates that some of the applications take considerable more time, while other applications are decided within a relatively low period. Indeed, we find that periods referents need on average vary considerably. In the period between 2000 and 2002, the fastest referent for needed for 125 research projects on average 119 days between the time the proposal was sent to FWF and the Kuratorium could decide. The slowest referent needed for 56 projects 185 days on average. This indicates that there is room for improvement

3.4 Evaluation

In the past years FWF has increased its efforts in evaluating its instruments and practices considerably on its own initiative. For the Networks and the Impuls and Kplus centres appropriate evaluation procedures have been developed to assess the quality mid-term (with possibilities to end the funding) and recently also ex post evaluations. Last year an evaluation has been commissioned by the FWF to evaluate its network programs as funding instruments. Earlier the FWF had commissioned an evaluation of its image among its main clients: the researchers. Moreover FWF has started to collect ex post reports of networks and research projects in the field of Biology and Medicine to analyse for specific patterns.

In addition to the ex ante assessment, FWF has over time implemented several evaluation schemes for the network schemes, as well as it cooperated in the evaluation of the Impuls program and in the evaluation of the *Kplus* centres.

FWF is member of the Austrian Platform for Evaluation of Research and Technology, and has adopted the standards of good evaluation practice.

While for network funding mid term evaluation and ex post evaluation are important for accountability reasons, evaluation of instruments and of client satisfaction, can perform a crucial role in the learning of an organisation. Also other research instruments may need a more systematic evaluation as a step towards a more rationalized portfolio of funding programs.

3.5 International management of research funding

As indicated before internationalisation is becoming more important, and will have effects on the funding and decision procedures of FWF. The current situation for FWF is ambiguous. On the negative side we see that the internationalisation of science policy, and more specifically the development of the ERA and moves towards a real European research council, raises a series of questions for which the FWF is not ready to provide an answer, leave to develop the appropriate organisational and operative responses. It lacks an International Affairs department and an internationalisation strategy.

At the same time, FWF is positively involved in international collaborations. There are some positive indications:

- the D-A-CH (Deutschland, Austria, CH /Switzerland) scheme, which allows researchers to use money from one country/council in another country. This schemes is really innovative and councils from other countries are interested to join.
- The involvement of Austrian researchers in 22 scientific programmes of ESF and the involvement of FWF in EUROCORE for excellent European research;
- FWF has also joined the European Young Investigator Awards (EURYI) established by the EuroHORCS to enable and encourage young researchers from all over the world to work in a European country.
- The FWF is involved in several ERA-Net activities in different functions (affiliated partner, work package leader).

An asset in the international context is the well organised ex ante assessments which can easily fit into international programs.

More problematic is the involvement in programs such as the EUROCORE of which the management of involvement of Austrian science requires quite a different relation between researchers and FWF, than FWF is used to up till now. More concretely, collaborations in such international programs require that FWF needs to act pro-actively and explicit invite researchers to submit proposals that fit in the program (by organizing workshops, launching dedicated calls, etc.). The international coordination of the review process requires also more time from administrative staff than the other procedures. A typical example was the preparation of an early stage EUROCORE programme on Self-Organized Nanostructures (SONS) which took considerable time, while in the end no Austrian researcher was funded from the program. Moreover, such programs imply that FWF has to leave to some extent its strong principle of bottom up funding and introduce some program funding.

One may argue that this is part of the game of the international programs, but if FWF wants to pursue on the international level it needs organisational changes to create capacity for dealing with international affairs and find ways that it can increase the likelihood of successful participation in such programs.

3.6 Assessment and recommendations

In the introduction to this chapter we formulated three conditions for a well functioning research council within science systems. In addition, in this chapter we assessed the different aspects of being a funding agency: budget, funding modes, peer review, evaluation and internationalisation.

3.6.1 Conditions for good functioning

The first requirement is a substantial level of competitive funding. It is clear that FWFs funding is small compared to the general university funding. The ASBR index is 0.16, far below that in other countries. Unfortunately the rather small budget is even not stable. If the Austria politics aim at a more competitive system, it seems appropriate to raise FWFs budget, though the facts give also indications which point in the other directions: FWF maintains a high acceptance rate, though the application pressure is said to increase, and seems still to be an attractive funding source compared to other possibilities. Moreover, a strategy for developing its funding portfolio is lacking. The findings on the impact of the individual bottom up projects does not legitimate that FWF spend 70% of its budget on this funding mode, certainly not if in the near future performance incentives will be attached to the institutional funding. The evaluation of the network funding may provide indications for the development of such a funding portfolio.

Competitive funding for the researchers needs to be sufficient attractive compared to the institutional funding. The results in this respect are somewhat ambiguous. It is clear that FWF has a good image among the Austrian researchers, which is probably due to its consistent positioning of a scientific council and its robust review procedure. Of the different funding sources FWF has the best reputation and apart from the mobility schemes and women schemes there FWF position is unique in the Austrian system. The application rates are high and indicate a good chance for researchers to get funding. The analysis of the network funding moreover indicates that these funding modes indeed result in accumulation of funding and concentration of excellence, which makes the FWF also attractive for top scientists.

However, the average size of the grants is relatively small, and FWF usually cuts the funding applied for. Paradoxically, the network grants which provide large grants are seen less appreciated by the researchers. These results suggest that Austrian researchers expect FWF to continue in a business as usual scheme, and want it to stay within the niche of funding basic science. The changing contexts of FWF suggest and may require another possible response: the current performance of FWF with regard to the network modes and with regard to international programs can be used as stepping stones for the development of a funding portfolio that is appropriate for the Austrian research system. FWF may also reconsider its career grants, to overcome the current fragmentation. Anyway we recommend that the cutting of projects budgets will be limited to those situations were parts of the requested budget are not eligible. There is no real financial reasons for other budget cuts.

The third requirement is that the competition for funding is sufficient open for new “players”, in a way that those not-funded feel that it is worthwhile to try. The analysis of the database indicated that most proposals find a level playing field and that there are no natural losers or winners. In other words, researchers with different backgrounds will have a fair chance to get their proposal approved.

On one point here there is a clear warning that the current scheme of the WissenschaftsKollege may result in a situation that it becomes a closed shop with no entrance for new networks, and continuous funding for the existing networks. The danger of such construction is that the actual funding for the WissenschaftsKollege changes from competitive funding into de facto institutional funding. FWF should reconsider its position on the WissenschaftsKolleg funding and try to find a way to keep the advantage of pooling excellence and provide opportunities for other fields to improve their Graduate Training and accumulate excellence and resources at the network level.

3.6.2 Portfolio of funding programs

FWF current portfolio is a result of a period in which the number of funding schemes increased dramatically. And without a clear strategy on this we expect that the number will increase further because of international programs and because of pressures to operate at the science and industry interface.

Reduction of the schemes is not just a matter of efficiency. In the same period that the number of schemes increased, the total funding increased as well, while the number of projects reduced – indicating that the size of the grants have increased. Also, most of the schemes are handled in similar ways of the Research projects. Only for the Wittgenstein and START separate juries have to be set up.

Reduction seems most of all indeed a political issue, and one that should be done in consultation with OeAW, the BMBWK and the universities. In the assessment of the number of funding schemes, one should also take into account the accumulation effects at network level. The analysis of accumulation at the Graduate Programs, one can see that a broad portfolio of funding schemes may serve the development of critical mass as well as the maintenance of it through creating opportunities for young researchers to enter the excellent networks. For the START and Wittgenstein prizes, one should take into account the publication effect for science that such prizes generate.

The findings point to two easy steps towards a more transparent portfolio. First the difference between the Sonderforschungsbereiche and Forschungsschwerpunkte are too small to maintain the difference. We recommend to merge the two programs in one program and to relieve the program criteria on the organisational distribution of the networks.

Second the reduction in the Charlotte Buhler applications and approvals may indicate that this scheme is not so appropriate anymore. It should be noted that the cohort of women researchers seem to have no specific disadvantage in the competition for other FWF funding. Anyway, because of the overlap in career schemes with those of the OeAW, it seems appropriate that FWF takes the lead in an overall reconsideration of these schemes and discuss and try to coordinate the respective responsibilities on this issue of the research organisations, of the individual researcher and of FWF, OeAW and the government.

3.6.3 Peer review

No changes in the peer review system seem to be necessary within the current regime, as the satisfaction of researchers with the review system is high. The peer review system is open to newcomers in terms of disciplines etc, while at the same time the portfolio of funding schemes allows for some accumulation of critical resources. There are no a priori barriers set up in the decision procedures that would give some researchers a better access than others. Even individual researchers with prestigious prizes have a moderate level of projects from the council. Accumulation of funding schemes and FWF sources occurs at network level and especially within the WissenschaftsKolleg.

The only substantial criticism on the procedures is the period it takes between the submission of proposals and the reception of the decision of approval. Because of the necessary input from peers from abroad FWF and its *Referenten* cannot control the whole period. However the differences reported were differences between the average periods *Referenten* needed to manage the process. There is no reason for this difference and FWF is recommended to find ways to help some of the *Referenten* to do the job more quickly.

3.6.4 Strategy development

The strategic capacity of the council is low, which is reflected in the lack of a clear strategy for its funding portfolio, the size of the strategy departments and lack of a strategy on crucial issues as public affairs/public understanding of science and on internationalisation. There are two assets FWF can build upon to improve its strategic capacity. The first is FWF's development of evaluation and incrementally make evaluations integral part of the management of the funding schemes. Further development of this will create intelligence on the impact and value of the different funding modes and may help FWF to improve the funding portfolio.

The second base is the work done by the staff on FWF to create through "facts and position" the positioning paper of FWF, looks to some extent beyond the current organisation. Such initiatives however should not be done on an ad hoc basis, but within a strategic unit in the organisation.

Clear gaps in the strategy of FWF are internationalisation and public understanding of science and we strongly recommend FWF to be clearer about how it will operate on these issues. For internationalisation it is urgent to create sufficient strategic capacity, as the developments in this context are fast moving.

3.6.5 Recommendations

- Austria should increase its competitive budgets for research.
- FWF should develop a clear strategy to accommodate an increase in the competitive budget, with a clear portfolio of funding schemes linked to a vision on the Austrian research system.
- FWF should limit the cuts of project budgets to those situation were parts of the budgets are not eligible.
- FWF has a good reputation among the researchers which is a strong asset and FWF should secure the reputation in the future, by maintaining a robust peer review system.
- FWF should reconsider its position on the Wissenschaftskolleg and find ways to overcome the risk that the three current WK networks develop in a kind of institutionally funded network, without possibilities for new comers.
- FWF should merge the funding schemes for SFB's and FSP's as the differences between the two are too small in a country like Austria.
- FWF should also take the initiative to coordinate the efforts and responsibilities on the stimulation of the careers of researchers.
- The differences in the periods between submission and approving of a proposal are too large and FWF is recommended make this more uniform.
- FWF's strategic capacity needs to be increased. Especially on internationalisation FWF is in need of more support. In general FWF should have a unit for strategy making.

4 Conclusions

FWF governance and internal processes are very much focused on the promotion of basic research and the advancement in knowledge. FWF has a central position in promoting basic science in Austria, though its budget position is not strong in relation to the institutional funding of universities. This evaluation of the governance and processes shows that FWF does a good job in promoting basic science through a mix of funding modes of which individual projects and network funding are the most important ones. FWF has a good peer review system, which is highly regarded by the scientific community and is based upon scientific reporters and international peers. There are small improvements that FWF can make to its peer review system.

Nevertheless there are good reasons to assume that FWF might not maintain this position and need to adapt to the changing context. Three contextual factors should really be taken into account:

(1) First of all, the recent pressures by the government to merge with FFF or at least to cooperate more closely with FFF. These proposals show that politically the government is getting more interested in FWF. The advantage might be that this will result in more funding for science as well; the disadvantage might be that FWF will be pressed to fit its working within specific political schemes.

(2) The main recipient of FWF funding, the Austrian universities, undergo substantial reforms. Universities will be more competitors in relation to FWF and less one interest group with common interests. Moreover, it might be that universities develop procedures for assuring the quality of research and stimulating excellence of research – with or without the help of FWF, and it might be that the future needs of researchers and the university system for FWF funds change.

(3) Internationalisation and especially the development of the European Research Area. Though excellent science has always be an international endeavour, because of the ERA more than ever research councils are operating at the international level as well. This results in many initiatives at the European level, and many opportunities for international collaborations.

In its current form FWF the organisation and the strategic processes are not appropriate to meet these changing contexts. Moreover it is uncertain whether FWF can sufficiently change into a research councils that fit to the new situation. This uncertainty is partly related to the contextual changes. The University reform still has to have its effects and the European Research Area is far from its ultimate shape.

We see two options for the FWF. One is to try to maintain its role as body for the promotion of basic science and leave responsibilities for such issues as university – industry relations, for strategic research, for national priority programs, to other actors in Austrian system. Even

then some changes have to be made, because within such a scenario FWF should develop some strategic capacity to respond flexibly to the changes in the Austrian research system and FWF needs to develop an international strategy to define its role within the ERA.

The other option is a shift of FWF towards a type of a research council which is responsible for the quality of the scientific research system. It will operate autonomously from both government and research organisations in order to be able to decide upon strategic interventions to optimize the functioning of the Austrian research system and help to embed Austrian science within the knowledge society.

In both options there is a need for Austria to increase the competitive budget for research, but in the first option there is less reason to transfer these funds to the FWF than in the second option.

List of Background Reports

The following reports provide the background analysis to this evaluation and may be obtained electronically from the organisations shown or from Technopolis at the Internet address shown below

- 1 The Innovation Systems Context [Joanneum Research]
- 2 FFF, FWF and Other R&D Funding Agencies and Instruments in Austria [Joanneum Research]
 - 3.1.1 FFF History and Governance [Technopolis]
 - 3.1.2 FFF Internal Functioning and Customer Satisfaction [Technopolis]
 - 3.2 Evaluation FFF Impact Analysis [Joanneum Research]
- 4.1 FWF Governance and Processes [Centrum voor Studies van Wetenschap. Technologie en Samenleving, Universiteit Twente]
- 4.2 Evaluation FW Impacts [Joanneum Research]
- 5 Background materials on international R&D funding [Technopolis]
 - 6.1 Panel Review of FFF
 - 6.2 Panel Review of FWF
- 7 Achieving Austria's 2.5% of GDP Target for Research and Development [WIFO]

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