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# **Evaluation of the programme Bridge**

## **Summary**

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## 1. Introduction

BRIDGE is an initiative funded by the Ministry for Transport, Innovation and Technology (BMVIT) that aims to close the “funding gap” between basic and applied research in stand-alone projects with the primary objective of jointly developing the potential of basic and applied research. BRIDGE acts as an umbrella structure under which the Austrian Science Fund (FWF) and the Austrian Research Promotion Agency (FFG) coordinate two thematically open funding programmes: The FWF’s Translational Research Programme (TR) and the FFG’s bridging programme (BR). The two programmes differ from one another in respect of the research’s potential to lead to specific applications and in respect of their funding intensity, which since the second call has resulted in the division of BR into two sub-programmes (Bridge 1 and Bridge 2).

- The TR programme funds projects that meet high international standards of scientific quality while at the same time offering innovation potential in terms of the expected application, but for which no commercially-oriented financing partner has been found. Applications may be made by individuals; the approved costs may be funded in full.
- In the case of the BR programme, applications may be submitted by research institutes and companies but also by individual researchers. The consortium must include at least two partners (1 from science, 1 from industry).
  - Bridge 1 supports collaborative research projects where most of the project costs (at least 80%) are borne by the research institute or the researcher. The enterprises that will potentially implement the results make a financial contribution and also provide material and manpower (maximum 20%); the maximum amount of funding is 75%. Applications may be made by institutions.
  - In the case of Bridge 2 much of the project work is still carried out by the scientific partner (at least 30%). However, the corporate partner makes a greater contribution to the project in the form of material and manpower; the maximum funding quota here is 60%.

In the years 2004-2008 BRIDGE had a budget of EUR 92 million for seven calls, the equivalent of EUR 10-11.6 million per year and programme line with two calls in each year.<sup>1</sup> Total funding of EUR 85 million was approved; EUR 40 million for 187 TR projects and EUR 44 million for 187 B1 and 72 B2 projects within the framework of BR. BR has a considerably higher average application approval rate (49%) than TR (29%).

When the programme was launched it was agreed that BRIDGE would be subjected to a mid-term evaluation after three to five years in accordance with the recommendation made by the Austrian Council for Research and Technology Development. After being hired to carry out this evaluation in October 2008 Technopolis analysed the concept, implementation, processes and organisation, goal achievement, and as far as they could be determined, the impacts of the programme. In comparison with other programme evaluations, two questions are of particular relevance. The first concerns the perceived funding gap: Did it really exist? Was it necessary and appropriate to launch an additional programme? The second question concerns the culture of cooperation initiated between the FFG and FWF, which for the first time are managing research funding programmes under a joint name and with a joint programme advisory committee. Among other things, this evaluation examines the question of

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<sup>1</sup> In 2004 there was only one call for each programme line, the budget was therefore lower.

how productive this model is and to what extent it should be continued in the future. For this purpose, qualitative and quantitative methods were combined, including in particular an analysis of programme documents and material from the BRIDGE advisory committee, interviews with the programme managers and stakeholders, an analysis of the FWF and FFG monitoring data, an online survey of applicants for TR funding and the scientific partners<sup>2</sup> in BR1 and BR2 applications (project leaders and partners), as well as four international case studies.

## 2. Results

1. BRIDGE did close a funding gap, but sometimes also overlapped with other programmes.

The programme is helpful for scientists whose work focuses on implementation in fields where research is still much needed but which were rejected by other research funding programmes on the grounds that they were too close to applied research; it also benefits companies with a need for basic research on a lower scale than a CD laboratory, for example, but which is still too high to be financed by the company itself to any significant extent. In this respect, BRIDGE has closed a funding gap and this was confirmed by large numbers of interview partners and comments in the questionnaires. On the other hand, a large majority<sup>3</sup> of funding recipients who had been well served in existing programmes would have conducted their research in a similar manner even without BRIDGE. With regard to the additionality of the programme, i.e. what would have happened to the project idea if it had been rejected or what is planned or has happened to projects that have been rejected, experience confirms that while a programme can be perceived as suitable, this does not mean it would be impossible to obtain funding from another source. The overlaps with other funding schemes pertain on the one hand to FWF stand-alone programmes where the applied research perspective is not a relevant factor but does not constitute grounds for rejection, and on the other hand, to certain thematic programmes run by the FFG, especially in the areas of transport and ICT, which in some programme lines also fulfil a bridging function.

2. The BRIDGE advisory committee serves as the bridge between the two funding agencies and is the backbone of the programme.

What makes BRIDGE so unique is the cooperation between FWF and FFG in the implementation of the programme within the framework of the BRIDGE advisory committee<sup>4</sup>. This body is responsible for drawing up funding recommendations and meets four times per year, with meetings focusing alternately on TR and BR projects. The particular challenge is that the FFG and FWF use different methods of project selection, especially in the appraisal phase. The FFG advisory committee has successfully used this discrepancy to learn important lessons. Over time, the BRIDGE advisory committee has gained increased de facto decision-making authority. In addition to making funding decisions, it has become the central place where the programme's focus is defined. Altogether, the impression arises that the success of the BRIDGE programme is due not least of all to the fact that it serves as a bridge between the two funding agencies.

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<sup>2</sup> Partners from industry were not questioned electronically, but were taken into detailed account in the analysis of FFG monitoring data and also interviewed.

<sup>3</sup> 69% of BR participants also take part in other FFG projects, 58% of TR participants had also previously received other funding from the FWF.

<sup>4</sup> Representatives of the FFG and FWF meet in a variety of forums and bodies, but BRIDGE is the first programme to be run jointly by the two agencies.

### 3. High percentage of new funding recipients at the two funding agencies

Both TR and BR address new target groups for the respective funding agencies: This is especially true in relation to the FFG whose General Programmes division is for the first time dealing with applications from universities at the project level, but it is also the case at the FWF. As a result of the programme's focus this organisation is now assessing large numbers of first-time applicants with projects which increasingly include non-university research institutes and universities of applied sciences. In fact more than 40% of the projects submitted to TR were first-time applications, in the case of BRIDGE more than half those taking part in the programme (applicant and partner) and 28% of the enterprises were participating in an FFG project for the first time<sup>5</sup>. Universities of applied sciences, which have been explicitly addressed by TR since 2006, account for only 2% of TR research centres.

### 4. Mobilisation of new and existing partnerships

One aim of the bridging programme is to deepen research cooperation between science and industry, and in particular to promote new partnerships.<sup>6</sup> The results of the survey of the scientific BR project partners show that 36% of the partners from industry are indeed new partners. In the case of BR, where cooperation is mandatory, it is also interesting that in six out of ten cases it had been the corporate partner that had approached the research partner with the project idea, i.e. in a large proportion of the cases it is the research partner that is the applicant and not the company. The corporate partner sees this cooperation from a slightly different perspective than the research partner, as under BRIDGE the latter is reimbursed for its costs as the companies are obliged to co-finance it. As soon as the company has a stronger need to control the results, there is a tendency to reduce the role of the research partner to the minimum required by BR2. Collaboration with the research partner is still more intensive than in General Programmes as the research partner is responsible for at least 30% of the project volume, but the corporate partner must only bear 40% of the research partner's costs.

In the case of TR, where there is no cooperation requirement, some 40% of researchers have entered into partnerships with industrial partners with whom they had not previously collaborated. One of the most interesting results in respect of the formulation of call requirements is that it is evidently unnecessary to insist on partnerships with industry; as soon as projects are required to have a practical orientation, partnerships comes about automatically. Overall, more than half the researchers collaborated with partners – be they new or previously known to them – from industry.

### 5. Importance of BRIDGE for the development of human resources

If one examines the positioning of BRIDGE applications in relation to other research projects at an institute or research centre, it becomes clear that both programmes, BR and TR, in equal measure play an important role in terms of human resources development. Both are much better suited than other projects at research centres for advancing researchers' scientific careers. In terms of their contribution to training diploma and doctoral candidates BR projects are more important for researchers than are TR projects. Furthermore, BRIDGE projects make a comparatively substantial contribution to improving the courses that are on offer, something which is also of relevance for human resources development. Accordingly, three out of four scientific project partners from both BR and TR list the practical experience gained by diploma and doctoral students as a project result.

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<sup>5</sup> For the purpose of this analysis the five years prior to the first project approvals were included, in the case of TR all earlier FWF grants were included in the analysis.

<sup>6</sup> Newly formed partnerships are given preference in the appraisal process.

## 6. Positioning in the Austrian funding portfolio

In the opinion of the funding recipients it is BRIDGE's orientation that makes the difference: Almost all those surveyed said the main reason they had decided to submit their project to BRIDGE as opposed to another programme was because the orientation of the project idea was ideally suited to the BRIDGE programme. Other arguments also played a role for more than half those surveyed: Besides the favourable point in time, applicants believed that an application was more likely to be approved by BRIDGE than by other programmes. However, respondents also cited the financial conditions, especially in the case of the bridging programme.

The BRIDGE programme differs from the stand-alone projects operated by the FWF in two related aspects. Firstly, a stand-alone project is required to break new scientific ground; in the case of TR this requirement has been softened in favour of the further development of application-oriented aspects. The scientific knowledge may already be available, but further basic research is still required in order to create the knowledge base for a future application or give rise to future use. Secondly, references which are application-oriented and consequently irrelevant for stand-alone projects can be submitted with project applications. The crucial question of whether TR approves projects which do not have the quality required for a stand-alone project receives a variety of responses. Especially in the early days of the programme there were a large number of project applications which did not meet the scientific criteria for stand-alone funding. However, members of the BRIDGE advisory committee and the FWF say that projects submitted after the most recent calls were of high scientific quality and also met the criteria for a stand-alone project. The evaluation of the survey results for the individual calls also shows a trend toward classic FWF projects with a stronger orientation toward an academic environment and a decline in the importance of collaboration with partners from industry. This does not constitute a problem for the programme as long as this practical relevance is maintained, but special attention should nevertheless be paid to this aspect.

In order to understand the programme's positioning in relation to other FFG programmes, FFG data was analysed with the aim of identifying other FFG programmes in which BRIDGE participants had taken part. General Programmes emerged as the most significant, with more than 500 BR participants having taken part in over 700 projects funded by the General Programmes division of the FFG in the five years prior to the first BR approvals and almost 350 subsequently. Among the Thematic Programmes, transport and mobility programmes (taken together) were the most popular, followed by FIT-IT and the new energy programme. Universities have far less experience with FFG programmes than do companies and research institutes.

In summing up it should be stressed that for a significant percentage of funding recipients this was the first time that they had received FFG funding. This is not only true of the universities, but also of research organisations and companies. Secondly, after taking part in BRIDGE projects it was predominantly research institutes that went on to participate in other FFG projects, especially within the framework of the Thematic Programmes. For universities, BRIDGE remains the most attractive FFG programme.

### 3. Recommendations and Outlook

With BRIDGE a programme has been successfully established that addresses new target groups and satisfies a clear need for the support of application-oriented basic research, and does so in three categories: Translational Research (TR), Bridge 1 (BR1) and Bridge 2 (BR2). The cooperation between the FWF and FFG reflects the necessary integration and convergence in respect of the funding criteria. A stronger focus on application on the part of the agencies that fund scientific research, and a stronger scientific basis on the part of applied research. Both the abundance of cooperation agreements with partners from industry in TR projects and the contribution to scientific quality in BR projects indicate that a gap is indeed being bridged. In organisational terms this is also reflected in the BRIDGE advisory committee.

#### 1. Continuation of the programme with its current focus

Based on the results of the evaluation we recommend that the programme should be continued with its current focus. The specific challenge is to constantly support the bridge building process by taking care that the programmes do not retreat into their "category of origin". Particular importance should be attached to a balanced appraisal process and transparent decision-making. Furthermore, it is essential to safeguard the continuation of the project in the long term by stabilising the source of funding, as in the first four years of the programme's existence a number of different budget lines were used to finance BRIDGE. Moreover, the effects that BRIDGE has or could have on the funding portfolio should be addressed and should be taken into account on both the procedural level and with regard to possible shifts in terms of content. In practical terms, the period of up to one year between the submission of the final reports on BR projects and the disbursement of the final grant instalments should be shortened. The aforementioned points are explained in greater detail below.

#### 2. Attention that the programmes do not retreat into their "category of origin"

Care should be consistently taken to ensure that the respective programmes do not withdraw into their "category of origin": If TR projects can compete on equal terms with classic FWF stand-alone projects in terms of scientific quality, greater prominence should be given to the applied research perspective. Equally, scientific excellence should be insisted upon if the project is distinguished by a practical relevance. Interdisciplinarity, which for example plays a role in arts projects that receive funding, should be welcomed and accepted as a challenge, especially in the appraisal process. Accordingly, the BRIDGE advisory committee and the regular calls that ensure the programme's visibility should be retained.

#### 3. Special emphasis on balanced appraisal and transparent decision-making

The creation of the FFG bridging programme has created a situation in which large numbers of scientific institutions are for the first time applicants for projects which are dealt with by the General Programmes division of the FFG. As shown by the evaluation of the BRIDGE application compared to other research projects at institutes/research centres, BR projects play a particularly important role in the training of diploma students and doctoral candidates. Thus they are not only of significance for the implementation of basic research in corporate development projects; they also constitute an important element of training for young scientists. The differentiation into BR1 and BR2 allows each of the project partners to choose a suitable structure for their cooperation on the basis of its application orientation and handling of exploitation rights. When assessing the projects it is therefore essential to engage in a constant exchange with the FWF to ensure that the assessment of the project applications is balanced and that the results of the appraisal can be communicated to the applicant clearly.

4. Speeding up payment of the final instalment of the grant after submission of the final report (BR)

One criticism that was raised in the feedback received from project leaders concerned the length of time between submission of the final report and payment of the last instalment of the grant by the FFG, which in some cases took up to 12 months. The reasons for these delays were not clear to the researchers. Even if the rules that govern the controlling of accounts are not specific to BR, but apply to all FFG programmes, it should be emphasised that these periods should be substantially shortened.

5. Stabilisation of funding sources

One problem specific to BRIDGE is that it is funded from several, in some cases, insecure sources. In order to guarantee the required stability we recommend that the practice of frequently changing funding sources be discontinued and long-term provision be made to finance the programme.

6. Tackle the effects on the funding portfolio

BRIDGE impacts the other activities of both the funding agencies on two levels and these aspects merit attention. Firstly, as a result of the discussions in the BRIDGE advisory committee there has been an exchange of information regarding the respective practices and competences of the agencies which then flows back to the organisations through their representatives in the advisory committee. The lessons that can be learned should be incorporated into internal procedures. Secondly, BRIDGE has changed the support portfolio in Austria in a way that has an impact on how other programmes are positioned. This is especially true of certain thematic programmes, which, inter alia, take up project ideas in the areas of application-oriented basic research in their respective fields. If research projects covering the entire spectrum between basic research and application-oriented research, and various combinations of the two, are to be supported at the structural level, the need for intervention will also shift in the case of programmes with a thematic focus. The experience gained from BRIDGE should be used by the agencies responsible for various funding instruments and programmes in other areas to learn from one another. Building upon this and in light of the results of the system evaluation we recommend that the objectives and funding instruments be adjusted.



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