

Recommendation on Optimised Proof of Concept Support in the Transfer of Knowledge

Background

Austria's gap to the EU's innovation leaders is primarily based on weaknesses in the marketisation of research results. The importance of the transfer of knowledge to companies as well as a stronger use of the scientific research base is emphasised in the EU strategy Europe 2020 and in Austria's National Reform Programme for the implementation of the European strategy as well as in the Federal Government's RTI Strategy (Becoming an Innovation Leader).

The transfer of new knowledge and new business models into marketable products and services is a complex process however, and sometimes has its origins in cultural specificities such as a low appetite for risk and often in structural weaknesses as well as inadequate framework conditions. An improvement in the performance of Austrian knowledge transfer can thus only be achieved through long-term and sustainable efforts by all participating players.

The Austrian Council has considered the topics of knowledge transfer and start-ups on several occasions in recent years, inter alia in its Recommendation Regarding the Efficient Translation of Research Results into Innovations dated 24 November 2011 or in a further recommendation regarding RTI-related start-up activities dated 19 November 2012.

Most of these recommendations are already being implemented by the actors in the RTI system, in particular the ministries and the funding agencies. The Austrian Research Promotion Agency (FFG), for example, has now started to set up an industrial PhD programme.

Knowledge transfer has many facets though and the ministries' promotional instruments such as the Christian Doppler Laboratories, COMET competence centres, Research Studios Austria and Laura Bassi support the transfer of technology between universities and the business community in accordance with relevant departmental priorities. As a result, potential prototypes are also funded until the results are implemented at the cooperating companies.

Another approach is to use research results by founding innovative companies. In this case, programmes such as AplusB, support the first steps of building an enterprise that lie between research, prototype and business creation.

The new programme of the BMWFJ and the BMWF, “Knowledge Transfer Centres and Exploitation of IPR” represents an additional instrument. Key questions in the transfer of knowledge and technology are addressed with this programme line that builds on the previous uni:invent and PRIZE initiatives. Module 1 supports the establishment of regional knowledge transfer centres, a thematic knowledge transfer centre for the life sciences and in particular promotes the transfer of knowledge from the humanities, social and cultural sciences. 39 Module 2 assists universities with patent applications. Module 3, “prototype development”, specifically targets the proof-of-concept phase, a particularly important and sensitive phase of marketisation.

Proof of Concept Definition

Proof of concept, also known as proof of principle, is a milestone on which the basic feasibility of a project is proven. In many cases, the positive or negative proof of concept is the result of a feasibility study. In general, the development of a prototype which has the core functionality required is associated with proof of concept.

Risks can be minimised in decision-making by means of a proof of concept. As a rule, the focus is on the following arguments:

- Risk minimisation for decision-making principles and budget
- Validation of critical requirements for the application
- Application acceptance test in cooperation with manufacturers and partners

International Examples of Proof-of-Concept Programmes

With the “proof-of-concept” funding programme, the ERC¹ aims to bridge the gap between basic research and the early stages of a marketable innovation. As part of this initiative funded under the 7th EU Framework Programme, researchers who are already supported by the ERC can receive up to 150,000 euros (100 percent of the cost plus 7 percent of general costs) to bring their research closer to the market. However, this is contingent on the award of an ERC grant. Researchers can use the additional funds to finance market research, technical validation and analysis of economic and operational possibilities for example.

Approximately 15 percent of the projects funded so far are established in the humanities, social and cultural sciences.

¹ European Research Council

Proof-of-concept projects for public research institutions in Denmark are financed with funding from the Danish Council for Technology and Innovation. The aim is to facilitate the commercial exploitation of inventions by developing detailed documentation of technical and commercial potential. For this purpose, researchers receive up to 100,000 euros for 18 months in the first round. A top-up of an additional 100,000 euros is possible for promising projects. The programme has been running since 2007 with approximately 50 percent of the evaluated projects having led to the creation of spin-offs.

The TULI programme developed by the Finnish government agency TEKES serves to evaluate the commercialisation potential of research results with its target groups being universities, research institutions and universities of applied sciences. The starting point for TULI is the evaluation of research results for their commercialisation potential, and the financial support of this process. Different funding levels are provided here. The first stage is supported with up to 5,000 euros and takes several weeks. The next stages (“evaluation phase” – up to 20,000 euros, “refinement phase” – up to 30,000 euros) last longer, namely one to three months, or one to six months. The detailed definition of a commercialisation model is presented at the end. The overarching objective also lies in providing new research-based companies with support in terms of licensing agreements and the transfer of knowledge.

Recommendation

1. Expanding the Circle of those Benefiting from Proof-of-Concept Support

The aws PreSeed programme is essentially hightech oriented and as start-up funding for the pre-seed phase is geared to future entrepreneurs. As the positive experiences from the former PreSeed pilot call for innovative service providers showed in 2010, there was a need for an expansion of the circle of beneficiaries.

The feasibility studies of the FFG’s General Programmes, which are commissioned as external studies at third-party research institutions, are also only provided for SMEs and startups. The technical feasibility of innovative ideas and concepts can be verified within the framework of the exploratory procedures in the FFG’s Thematic Programmes. Companies and universities, universities of applied sciences and non-university researchinstitutions are eligible to apply to exploratory procedures.

The PRIZE competition focuses entirely on prototype development at universities. While universities can now work together in PRIZE’s successor (module 3 of the programme on knowledge transfer centres), as part of what are known as collaborative projects with other universities and non-university partners such as the Austrian Academy of Sciences, in

practice there has been little take-up.² Focusing on patentable or patented inventions also results in a restriction to high-tech industries.

Even if some restrictions to advanced technology and some types of beneficiaries are understandable for budgetary reasons, this does not seem satisfactory in view of the effect in the innovation system since it represents an artificial constriction of the competition of ideas. Comprehensive proof-of-concept support must not necessarily take place within an individual programme. However, the existing funding lines will have to be adapted or extended.

The Austrian Council therefore recommends:

- Analysing and evaluating the available funding lines relevant to proof of concept for their target accuracy and overall innovation policy effect.
- Promoting all knowledge and technology intensive sectors as well as creative and social sectors including the humanities, social and cultural sciences and the innovative services sector within the framework of comprehensive proof-of-concept support.
- Providing proof-of-concept funding for all potential beneficiaries. In addition to companies, it is first and foremost the academic sector that must be well integrated. Alongside recommendations universities, this specifically includes nonuniversity research as well as universities of applied sciences and independent researchers

2. Design and Development of Proof-of-Concept Funding Instruments

The provisions of state aid law often hinder the transfer of knowledge and expertise to the market. Market-ready developments may not be funded. On the other hand, there are very low funding rates for close-to-market developments, which is often an obstacle, especially for academic project partners. Proof-of-concept support can therefore be most effectively provided by exhausting non-state-aid relevant possibilities and by working with de minimis subsidies. Currently, the PreSeed programme provides up to 200,000 euros in funding for the scientific execution, review and preparation of the proof of concept, for study and concept costs, market analysis and consulting and training measures of a legal and organisational nature with a typical project duration of 12 to 18 months.

In the FFG feasibility studies, a maximum of amount of 30,000 euros is available explicitly for external studies, but certainly not for costs incurred by the applicant (e.g. for a prototype). For exploratory procedures in the Austrian Research Promotion Agency Thematic Programmes, all of the attributable costs for technical feasibility and concept development are

² According to information from the aws, only one of the 29 applications submitted for the first call in autumn 2013 had a non-university cooperation partner.

recognised. The funding requested for exploratory procedures is up to 200,000 euros for a maximum term of 12 months.

The PRIZE successor, module 3 for prototype production, funds up to 70 percent of projectspecific prototype costs up to an amount of 100,000 euros for simple projects and 150,000 euros for cooperative projects for a maximum term of 18 months.

In terms of the practical implementation of proof-of-concept projects, especially with technical prototypes, questions of an organisational nature are often asked, about the availability of special experimental laboratories, equipment and other technical infrastructure for example.

The Austrian Council therefore recommends:

- Further exhausting the de minimis regulations of EU state aid law in respect of company funding for proof-of-concept support with adequate funding rates.
- Covering economic, social, legal and organisational questions with proof-of-concept funding instruments in addition to technical feasibility and validation, if necessary.
- Following the Finnish model, establishing available proof-of-concept funding in several phases with incorporated Go/No Go decisions to increase the efficiency of the commercialisation process.
- Making greater use of the incubator function and coaching programmes from existing institutions such as the AplusB and technology transfer centres for the implementation of proof-of-concept projects – as announced for the “Living Labs” initiative – and promoting the early and systematic involvement of user perspectives to accelerate the innovation process.

3. Optimisation of Governance in Connection with Proof-of-Concept Support

Funding with proof-of-concept-relevant elements in Austria is currently focused primarily on business and is handled by either the Austrian Research Promotion Agency or the aws that serve as agencies, mainly for corporate funding.

In the Austrian funding landscape, a proof-of-concept programme would be positioned somewhere between the BRIDGE-programme and the AplusB programme for startups. Both these programmes are currently managed by the FFG.

The aws, on the other hand, has a great deal of experience in assessing the commercialisation potential of scientific results with its start-up programmes and growth programmes. Building on this, the aws supervises the new “knowledge transfer centres and IPR exploitation” programme and thus module 3 prototype funding (formerly PRIZE). Due to its connection with the start-up topic, the PreSeed programme is also based at the aws.

Similarly to the ERC, a proof-of-concept programme could also be positioned as a follow-up to the customary FWF programme lines. In the first place it would be especially important to give the FWF a real role in transferring knowledge, particularly with a view to resuming the Translational Research Programme. This means that the connection to the Austrian Research Promotion Agency's BRIDGE Initiative could be resumed in the spirit of the previous bridging programme.

In this connection, an Austrian Council white paper³ recently recommended fundamentally and systematically reorganising the division of competencies between the RTI players.

The Austrian Council therefore recommends:

- Using the organisation and completion of the available proof-of-concept support as a benchmark case for the implementation of the white paper on RTI governance.
- Following the lines of action suggested by the Austrian Council in its white paper during any reorganisation of agency competencies made as part of proof-of-concept support.
- Closing any gaps in existing proof-of-concept programme lines regardless of historic programme or departmental responsibilities and consequently establishing additional programmes and new programmes at the agency that is best suited to managing the content.

³ White paper of the Austrian Council for Research and Technology Development from 26 September 2013 on steering research, technology and innovation in Austria