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## Best Practice Report

***PFAU-Programme for the financial support of start-ups from Universities in North Rhine-Westfalia (NRW)***

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Everybody please state revision index and short description of what has been done + partners involved and date.

<b>Final approval</b>	<b>Name</b>	<b>Partner</b>
<b>Reviewer</b>		

## 1. Best Practice Title

PFAU- Programme for the financial support of start-ups from universities in North Rhine-Westphalia (NRW)

## 2. Location of Best Practice

*Country, region, town*

Germany, North Rhine Westphalia

## 3. Best Practice Executive Summary

*Describe briefly (max 10 lines) the GP context (partnership, funding, objectives, approach followed, results)*

Small and medium-sized technology-based and know-how based enterprises are important in the modernisation of a particular economy. Here start-ups from universities and spin-offs from research centres and scientific institutions can be a significant factor. Entrepreneurs from universities base their business ideas more on recent R&D results than do established firms. Thus the promotion of start-up activities from universities and R&D institutes is an instrument that speeds up technology transfer from the science to the business community.

The main promotion goal is to develop innovative products, processes and service ideas into a marketable product or service by using existing state-of-the-art facilities at the universities and R&D centres (laboratories, equipment, ICT infrastructure). The programme targets graduates from universities and researchers whose last university degree (diploma or PhD) was completed at the latest three years prior to application. The programme offers a financial stimulus on a monthly base in order to support graduates in the option of "Starting your own business". The maximum duration of the funding is two years. Additionally, the start-ups are given a kind of "pocket money" to upgrade their business skills and make their first investments in equipment.

The programme was developed and is financed by the Ministry of Innovation, Science, Research and Technology in NRW. Program implementation is the responsibility of an independent organization (in NRW it is ZENIT) selected via a public tender.

## 4. Best Practice Classification

### Best Practice Theme

*X Research Transformed to Innovative Product*

*Research Transformed to Innovative Service*

*Research Transformed to Innovative Methodology*

*Research Transformed to Innovative Production Process*

*X Financial Mechanism for Transformation of Research to Innovation*

*X Support Mechanism for Transformation of Research to Innovation*

*Other (describe)*

## Best Practice Research / Application Areas

### x Industrial / Manufacturing Systems

- Industrial Informatics and Communications
- Intelligent Devices
- Distributed Control Systems
- Flexible Manufacturing Systems

### X Embedded Systems

- Industrial Embedded Systems
- Nomadic Environments
- Private Spaces
- Public Infrastructures

## 5. Description of Best Practice

### 5.1 Best Practice Context

*Overall background of the Best Practice. Location, socio-economic, technical & policy background of the BP (max 10 lines)*

The North-Rhine Westphalia has a long tradition of innovation promotion measures and complex institutional system of technology promotion. With a population of 18.1 million inhabitants and a working market of 8.3 million employees, the North-Rhine Westphalia enjoys an excellent R&D infrastructure consisting of 63 technology parks and centres, 59 universities and technical colleges, 55 research institutes and 31 technology transfer agencies.

In terms of the active student population, the number amounts to 450.000 people with 65.000 of them coming from abroad. The problem can be described as a situation where a very small number of innovative firms start-up every year with less than 0.5% of university graduates set-up a business on their own. What is observed is that know-how and technology transfer from S2B (Science to Business) is seriously lacking.

To strengthen the university-industry links PFAU provides motivation by funding young graduates to create their own start-ups. The most important features of the program are:

Monthly paid financial grants that helps starters to concentrate on starting their business (€1.000 net per month).

Innovative start ups get free access to university resources (labs, machinery)=> Universities acts as an incubation centre, whereas professors support start ups as mentors. Furthermore young graduates get personal training on business matters.

These measures are expected to get graduates motivated (up to three years after graduation or PhD) to consider starting a business on their own as a serious option (besides academic career or working in a firm).

#### 5.1.1 Policy Elements

*What are the policy initiatives that have influenced the contextual environment of BP: innovation promotion policies, research funding policies, certification ect as well as relevant tools (max 10 lines)*

For many years start-ups in Germany have been playing a significant role in the country's economical development. Entrepreneurial and self-employment concepts have gained ground in German population. These, coupled with the great achievements of new technology and university research triggered the state interest to invest in coupling scientific knowledge from university research with marketable products. As a result there is a significant effort to promote innovation promotion policies

by launching suitable development programs.

### 5.1.2 Socio-economic & Other factors

*Other contextual factors such as customer / target market addressed, international validity, customer density, economic conditions, customer values, research area addressed (max 10 lines)*

## 5.2 Objectives

*Aim of the project, specific objectives & strategies to achieve these objectives (max 10 lines)*

The main goal of this project is to accelerate the transfer of novel ideas into industry by strengthening the university-industry links. This is achieved by strengthening the links between SMEs and research institutes. This will help to develop innovative ideas into full valued products and processes by using state-of-the-art infrastructure and facilities at the universities and R&D centers.

Apart from that, other goals are to increase the Research & Development activities in North Rhine Westphalia (NRW) and to increase the potential for innovation of the industry.

Other goals are related to the promotion of R&D by implementing innovative ideas for products, processes and services into marketable products or services. This is done by using existing state-of-the-art facilities at the universities and R&D centres (laboratories, equipment, ICT infrastructure).

In economic terms the goal is to increase the number of competitive sustainable jobs and the competitiveness of the industry.

## 6. Process

*Describe the project including key concepts and the overall approach followed. Indicate project end users, target market, main project phases, problems encountered and solutions, problem resolution (max 10 lines)*

The key concept of the project is to provide motivation to young graduates to turn R&D ideas into marketable products. To achieve this, young researchers submit business ideas for evaluation twice a year (see project design below). If their proposal is successful they get funding for a maximum period of 2 years to create their own start-up.

Hence, the process of turning an innovative idea into product is:

Business idea → business plan → company start-up

The project end-users are the young researchers and the associated start-ups.

The major phases of the project are:

- a) Submission of business proposals,

- b) Evaluation of the proposals through a detailed selection process
- c) Financial support of successful proposals and establishment of start-up
- d) Building of the infrastructure ( free training seminars, free access to university resources)
- e) Presentation of business progress (after 8 months)
- f) Extension of grant for another year

## 6.1 Project Design

*Project design based on targeted market complete understanding, project structure, policies and procedures, management and implementation actions (max 10 lines)*

The goal is to encourage the creation of new innovative firms and increase the know-how and technology transfer from universities to the market such that the NRW economy is fueled with new business opportunities. To achieve this, the project is designed to provide motivation to well - educated young graduates that have no experience and business-oriented reputation and no track record to acquire financial resources to initiate business opportunities of their own.

To this end, university graduates are requested to submit business ideas to start their own business. There are two deadlines by which applicants can submit their business ideas: 1<sup>st</sup> of March and 1<sup>st</sup> of September.

These ideas are pre-ranked according to the criteria:

- 1) chances of success of the business idea
- 2) degree of innovation
- 3) research needs/development needs.

## 6.2 Project Management

*Activities relevant to project coordination and management, project documentation and reporting, quality control, validation and verification (max 10 lines)*

The program is managed by an independent organization (in NRW it is ZENIT) selected via a public tender. The organization is responsible for validation and evaluation of the business ideas.

These evaluations are forwarded to a committee, which then assesses each business plan. As additional help they can use data which provides information about the entrepreneurial capabilities of the individual applicants. This data is based on a tailor-made, one-day assessment centre for the start-ups. During the promotion time, the organization implementing the project advises the start-ups, mediates in the case of conflict between start-up and professor/mentor or university administration.

The person receiving funding is awarded a monthly grant by the university where s/he is formally employed as "scientific assistant", but without any duties at the university.

- The program is transferable to every region with universities and/or universities of applied sciences.

### 6.3 Project Implementation

*Main elements associated with the project implementation. Realization of new idea, or new technological realization or improvement / novelty to known technology and means to achieve this. Innovation associated with the project realization in terms of new products, services, methodologies. Marketing, advertising and customer service. (max 10 lines)*

The main target of the project, as mentioned before, is to provide strong motivation for young graduates to transform innovative ideas into marketable products through the creation of their own start-up. To this end, the project provides a mechanism for funding of such ideas in order to provide the means for starting their own business.

Young graduates are first requested to submit business proposals based on novel ideas. These proposals are submitted twice a year (1<sup>st</sup> of March and 1<sup>st</sup> of September). On a first stage, these ideas are pre-evaluated based on the chances of success, degree of innovation and R&D needs.

The results of this first evaluation are then forwarded to a committee which assesses each business plan. The committee uses information about the entrepreneurial capabilities of the individual applicants as additional information to produce their decision. Successful proposals are then financially supported and the start-up is established. During the promotion time, the organization implementing the project aids the start-up to build its infrastructure by orchestrating free training seminars and providing advises on individual level. It also mediates in the case of conflict between the start-up and the professor /mentor or the university administration.

A presentation of the business progress takes place after a period of 8 months. If progress is considered satisfactory the venture is given a year's extension of the grant.

### 6.4 Project Evaluation

*Project feedback mechanisms and evaluation mechanisms. (max 10 lines)*

During the project implementation the business start-ups are evaluated after a period of 8 months to assess their capability to produce marketable products and to sustain their business further.

Considering a broader picture, in the last 10 years, 564 business ideas have been reviewed. 244 applications were found eligible, which resulted in 232 persons being granted support. At least 153 projects with 184 sponsored entrepreneurs have resulted in a new enterprise. The majority of the firms analysed are innovative (criteria were patents, R&D activities, technology intensity of the products) and the resulting impact in terms of employment is very positive: On average there are 5.8 employees per firm and over 50% of the employed persons have a university degree.

## 7. Description of Research team/Institution

*Short description of R&D team and institution (max. 10 lines)*

The programme is managed by an independent organization (in NRW it is ZENIT) selected via a public tender. The organization is responsible for validation and evaluation of the business ideas.

ZENIT GmbH, founded in 1984, is a Public Private Partnership owned by the State of North Rhine-Westphalia, a consortium of banks and an association comprising some 200 enterprises. On behalf of EU, national and regional bodies, ZENIT provides services for the benefit of companies, especially small and medium-sized enterprises, as well as universities and research institutions.

One of the main ZENIT objectives is to stimulate innovation for technology-oriented small and medium-sized enterprises, clusters, research institutions and universities, so that innovative ideas are turned into good business - both in Germany and abroad. ZENIT sets Europe as its priority. In fact it has become one of the largest nodes of the Enterprise Europe Network. This seems to have helped ZENIT to evolve from a regional centre for innovation support to a "European agency" offering a wide spectrum of EU-related consulting and information services. ZENIT considers that the three main pillars of their business are "Europe", "Funding", and "Technology and Innovation".

## 8. Applied Financial Mechanism

*Describe financial mechanisms applied in transformation of research into innovation within BP, as well as means of connecting scientific research team and financiers (max. 1000 char.)*

When a business idea after evaluation is proposed for funding, the young researcher that proposed it receives funding on a monthly basis (1.000 Euros net per month) by the university where s/he is formally employed as "scientific assistant", but without any duties at the university. Apart from the 1.000 Euros/ month used to cover life expenses, the successful candidates receive 5.000 Euros for external expertise (coaching, personal training, etc.).

This financial stimulus supports graduates in starting their own business. Furthermore, it helps starters to concentrate on starting their business.

Apart from financial type of support, they receive two training seminars on business matters free of charge and they have free access to university resources (labs, machinery).

Universities act as incubation centres and professors are supporting start ups mainly as mentors.

The maximum duration of the funding is 2 years.

Additionally, the start-ups are given a kind of "pocket money" to upgrade their business skills and make their first investments in equipment. The program was developed and is financed by the Ministry of Innovation, Science, Research and Technology in NRW.

## 9. Impact and benefits

*Describe achieved benefits of R&D team and/or enterprise implemented innovation, as well as impacts on institutional and policy levels. (max. 1000 char.)*

As mentioned above, 564 business ideas have been reviewed. 244 applications were found eligible, which resulted in 232 persons being granted support. In addition to that, the public investment of 10.000 Euros per working place in average was provided.

Furthermore, it was found that 62% of all businesses are financially "successful" or "very successful".

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One of the main challenge for the instrument was how to motivate technology transfer institutions at the universities and professors at the universities to promote inside the university the idea of starting a business. Apart from the lack of an entrepreneurial culture at the universities, it is difficult to reach the target groups there. However, it was found that a number of positive effects was triggered in NRW (turn over, employment effects, business location etc.) and this, in turn, improved the entrepreneurial culture at universities which are the provides of the human potential in this project.

Another qualitative benefit is that this project motivated partners in the universities through transfer agencies that informed the young graduates and promote the program.

## 10. Sustainability

*Provide information on sustainability of innovation after financial aid within implemented financial mechanisms, and some multiplier effects as replication and extension of the action performed in BP. Expected use of Best Practice and lifecycle considerations. (max. 1000 char.)*

The main challenge for the instrument is how to motivate technology transfer institutions at the universities and professors at the universities to promote inside the university the idea of starting a business. Apart from the lack of an entrepreneurial culture at the universities, it is difficult to reach the target groups there. Professors could act as multipliers but it is difficult to convince them as they consider teaching and academic research as their main tasks. Supporting start-ups is rewarded neither with money nor with acknowledgement.

Another bottleneck is the promotion policy of the program, where only 29% of all applicants learnt about the PFAU project through specific program promotion activities, while the readiness of university administration to support the start-up programme with quick and unbureaucratic decisions is questioned too.

In terms of sustainability matters, the prerequisites for the instrument's success are the following:

- Partners from universities should actively promote and communicate the instrument in the universities
- Professors should see this instrument positively because business development in a variety of scientific area will bring more research grants for them
- Public partners should realize that a solid advance of such an initiative will bring more money
- The cornerstone of this collaboration is trust between universities and students/graduates.

Most importantly, the experience of this project provided the basic elements for launching other promising programs. More specifically, in 2008 a call of a new program "Science to Business" was launched.

To help overcome some bottlenecks of PFAU the following changes were incorporated:

- Change of promotion focus to quick transfer of excellent research results into new applications
- Promotion of best ideas through annual Contest
- Concentration of funds to rapidly evolving fields like nanotechnology, biotechnology etc.
- Eligibility for patent applications and prototype development.

## 11. Repeatability and transferability

*Lessons learned from the project implementation team. Repeatability and transferability of the project. (max. 1000 char.)*

Although the program has enabled the creation of over 200 successful start-ups there are numerous lessons learned providing ground for improvement:

- The monthly grant should be adapted to a regional framework taking into account the qualifications of the successful scientist.
- The eligibility of applications for a grand must be clearly defined
- The rules should be clear such that money cannot be used for starting a PhD.
- Entrepreneurial culture in university should be encouraged
- Adequate incentives must be given to motivate professors/ universities to support start-ups.

The repeatability of the project with improved mechanisms is apparent since , as noted above in 2008 a new program “Science to Business” was launched.

It should be also noted that both the structure of the project as well as the strategic goals of the implementing company can guarantee transferability of such program to other states and other European Union countries.

## 12. Evaluation

*Describe reasons and evaluation criteria why the described example is a best practice. (max. 1000 char.)*

As it was already mentioned, the instrument has assessed more than 500 Business Plans between 1996 and 2004 and 244 graduates and PhD holders have been selected for funding. From a qualitative perspective, it has been observed that the majority of start-ups are innovative (patents, R&D activity, R&D intensity of products) and that more than 50% of start-ups invest more than 75% of their time on R&D. Overall, the majority of positive effects inside North-Rhine Westphalia (turnover, employment effects, business location, etc.) have contributed towards the improvisation of the entrepreneurial culture at universities.

The success factors of the instrument lie within the following areas for improvement:

- Evaluation of ideas and people of equal weight
- Motivated partners at universities (transfer agencies that inform students and promote the instrument)
- Professors in collaboration with the instrument that also rewards them for their additional engagement
- Setting tough milestones together and exercise control over them
- Sense of absolute liability and trust in payments within the instrument and the involved
- Institutions.

On the other hand, certain bottlenecks have been also observed, mainly in the areas below:

- Nearly 45% of funded persons state that they would have started their business without funding
- It has been noted that some people attempt to use the program in order to finance their PhD
- Professors may see the programme as a competitor to require well-educated scientific assistants
- Professors may also see the start-up as an additional assistant for their own interests.
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Overall, despite all advantages and disadvantages observed, the financing body, Ministry for Innovation, Science, Research and Technology in NRW decided to revise the instrument in 2007 and, as noted above, to launch the call of a new programme “Science to Business” in 2008, changing the promotion focus, organizing an annual contest of ideas for research teams rather than single researchers, concentrated budget on nano- and micro-technology, biotechnology, energy research, medical technologies and life sciences. Within the new programme, eligible areas are patent applications, development of prototypes, start-ups from universities and ideas’

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commercialization.

<b>13. Contact of research team/institution</b>	<b>14. Contact of financial mechanism facilitator</b>
<i>Name, address, tel., fax, e-mail, URL</i>	<i>Name, address, tel., fax, e-mail, URL</i>
<p>Dr. Bernhard Iking Project Manager ZENIT – Centre for Innovation and Technology in NRW/DE <a href="http://www.zenit.de">http://www.zenit.de</a></p>	<p>Ministry for Innovation, Science, Research and Technology in NRW (MIWFT) Retrieved from "<a href="http://www.i3e.eu/i3e_wiki/index.php?title=RDF-RWG_GP7">http://www.i3e.eu/i3e_wiki/index.php?title=RDF- RWG_GP7</a>" Category: <b>RDF-RWG</b></p>