

Summery

Research on the principles of cooperation and relations between scientific and economic institutions in the TEAM TECH program

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The TEAM-TECH programme is aimed at the development of R&D staff in team projects implementing research work into commercial practice, delivering research services, or operating research equipment for business customers.

The programme provides funding for projects conducted by scientists with research or implementation experience, involving young scientists: undergraduates, doctoral students, or recent PhDs. The projects last up to 36 months and the maximum budget per project is PLN 3.5 million (with a possibility for extending the project by up to 24 months and obtaining additional funding). In the TEAM-TECH programme, stress is placed on mandatory cooperation between research institutions and enterprises, which can take two forms: consortium projects (research institutions and enterprises), or projects carried out independently by an enterprise or research institution, but with support from a scientific or commercial partner, respectively.

The TEAM-TECH programme was launched in 2016. In 2016–2018, five competitions were concluded. 72 applicants participated. The great majority of applications were filed by scientific institutions: 28 universities, 10 institutes of the Polish Academy of Sciences, 14 research institutes, and 6 other entities.

28 projects were selected for implementation, of which 17 were submitted by scientific institutions, 9 by consortia, and 2 by enterprises. According to the participants' declarations, there were 50 enterprises serving as partners in implemented projects, with one to a maximum of four partners per project.

Aims and methodology of study

The aim of the study was to evaluate the impact of the TEAM-TECH programme on the activity of commercial entities and scientific institutions. The study was conducted by examining the following areas:

1. Nature of scientific institutions and enterprises involved in the TEAM-TECH programme
2. Form of cooperation
3. Assessment of the impact of the programme on taking up cooperation between enterprises and scientific institutions
4. Assessment of aims and implementation of the programme
5. Assessment of the initial effects of the programme.

The following methods were used in the study:

- Desk research
- In-depth individual interviews with representatives of scientific institutions and enterprises (28 interviews)

- Computer-assisted web interview (CAWI) survey of grant recipients, partners, and unsuccessful applicants (74 questionnaires)
- Case studies of cooperation (6 cases)
- Review of best practice for supporting cooperation between scientists (scientific institutions) and enterprises, as well as a study of the effects of such initiatives (6 instances)

Key conclusions

Cooperation between scientific institutions and commercial entities

The cooperation observed featured varying levels of intensity, from the formal, where the enterprise declared that it would be interested in the research results when they were ready for commercialization, through commitment of the enterprise's own resources at the research phase.

The decision on the enterprise's involvement as a consortium partner often depended on a history of cooperation and on a high degree of technological readiness of the solution the scientific team was working on. A significant share of cooperation between scientific institutions and spin-off/spin-out enterprises founded at the same institution was also observed.

Cooperation in consortia and partnerships was typically based on earlier cooperation and personal acquaintance. The cooperating firms often had strong ties to the scientific institutions. They were spin-off or spin-out firms, and hired graduates, while there were also instances of "personal unions," i.e. where a decision-making function was held by the same person at both the firm and the scientific institution.

The applicants' opinions on the motivations for cooperation with business indicate a predominance of "high-flying" over "down-to-earth" motives. The respondents often indicated a desire to translate research results into commercial practice, to develop new solutions, or to create possibilities for growth of young scientific staff, and less often pointed to personal financial benefits. The criteria for selection of commercial partners focused on substantive issues, i.e. specialization in the given field of knowledge or technology, specialist infrastructure, complementary fields of activity, and potential demand for the scientific institution's services, technologies and knowledge.

In most instances, the cooperation was rated very highly. Problems appeared to be sporadic and solvable (e.g. by finding new partners).

In the population of beneficiaries and commercial partners in TEAM-TECH projects, the programme had a visible impact on the readiness to cooperate. The respondents anticipated that the intensity of cooperation after the project would be greater than before the project. The representatives of scientific institutions also had a more optimistic attitude toward the scale of cooperation following the project than the commercial partners did.

Assessment of aims and implementation of programme

The TEAM-TECH programme was assessed highly by the applicants. The following were identified as strengths of the programme:

- **Ability to build research team** – thanks to the projects, the respondents were able to maintain their existing team or expand them to include additional persons.
- **Ability to pursue work with an eye to the needs of industry, but also with a key element of “science”** – most of the respondents acknowledged that TEAM-TECH skilfully combined the applied character of projects with maintaining their high scientific value. This was contrasted with support provided by the National Science Centre (NCN), focusing on basic research, and support from the National Centre for Research and Development (NCBR), focusing on R&D projects with a profile strictly oriented toward implementation.
- **Providing a sufficient level of flexibility** in terms of modification of an R&D project after obtaining funding.
- **High value of support.** Project funding levels ranging around PLN 3.5 million are adequate to take on ambitious scientific challenges requiring research.

With respect to the weaknesses of the programme, the respondents universally pointed to the **administrative burdens**. They complained primarily about the formal legal requirements peculiar to funding from EU structural funds.

Initial effects of the programme

The assessment of the effects of the programme should be treated as preliminary, due to the modest level of advancement of project implementation. As of the time of the study, none of the projects had been completed. The evaluation was divided into scientific institutions and enterprises because the differences between these categories of entities translated into differences in the observed and anticipated effects.

Effects observed by scientific institutions

Creation of research teams. In the laureates' view, it would not have been possible to create teams attracting members with appropriately high qualifications if it weren't for the appealing conditions created by the TEAM-TECH programme.

Development of research careers of team members. The projects contribute to obtaining further academic degrees and also lead to publications, conference appearances, and patent applications, thus enriching the scientific accomplishments of the individual team members.

Raising the skills of team members in cooperation with the commercial sector. The projects contribute to a better understanding by students and researchers of the expectations of the business community.

Promotion of scientific institution. FNP grants are perceived in the scientific community as prestigious. An additional advantage of the TEAM-TECH programme is that it involves projects calling for cooperation between the science sector and the business sector, fitting into the current dominant narrative of the need for closer relations between science and business.

Growth in awareness of staff of the home institution not involved in the project. According to the study, the projects generate benefits not only for the team members immediately involved, but also for other staff of the scientific institution. Typically, at the level of the research institute or university faculty, the projects funded by FNP are among the most important and highest-funded. These projects raise scientists' awareness that ambitious scientific research and cooperation with industry are not mutually exclusive.

Contribution to the parametric evaluation of scientific institutions. Projects funded in TEAM-TECH are also significant in terms of the parametric evaluation of the unit, in which the unit's scientific accomplishments and its accomplishments in cooperation with the commercial sector are both taken into consideration.

Effects observed by enterprises

Growth in employment at the firm, on average by several people, whose jobs are financed out of the project. Interviewees from companies regarded this as one of the key impacts of the programme, indicating that it greatly increased the company's research potential.

Enrichment of the company's portfolio by a large research project financed by a highly renowned institution. In the respondents' view, this can facilitate new business contacts in the future or efforts to obtain public support. Projects of this type increase the company's credibility, confirming that they are a commercial entity with great research potential.

Access to knowledge. According to the interviews, during the course of project implementation, enterprises receive a benefit in the form of ongoing access to the results of research work conducted in the project, which helps them confirm whether or not the research is heading in a promising direction. In the future this knowledge can be exploited to conduct further research work aimed strictly at implementation.

Access to potential employees. Members of the research team are regarded by some commercial partners or consortium members as potential employees. Through participation in the project, and contacts with the director, companies are in a position to identify which team members have the qualifications they most desire, and then they can offer cooperation to selected persons.