Institute of Experimental Medicine, CAS

STRATEGY FOR THE DEVELOPMENT OF

CROSS-SECTORAL COOPERATION, INTELLECTUAL PROPERTY USE, AND KNOWLEDGE TRANSFER

IEM CAS

HR AWARD

Activity No. 6 – Strategic Definition and Development of Cross-Sectoral Cooperation and Technology Transfer

Contents

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Introduction

Being one of the establishments of the Czech Academy of Science, the Institute of Experimental Medicine is aware of its responsibility as regards the use of the outcome of scientific research in real-world applications. For this reason, activities aimed at promoting cross-sectoral cooperation and knowledge transfer are among the IEM's strategic objectives.

The strategy for the development of cross-sectoral cooperation, intellectual property use, and knowledge transfer is one of the IEM's strategic documents. Its purpose is to define the main strategic objectives as well as activities to be carried out to attain the individual targets of the overall plan.

The strategy is intended both for the internal needs of the IEM's staff and management and for external partners, where the goal is to provide a transparent outline of long-term objectives and to specify tools for their fulfillment. Apart from long-term targets, the document also specifies specific activities to be carried out during the forthcoming three years.

The strategy has been compiled in the framework of the project "Development of Resources of the Institute of Experimental Medicine CAS" financed under the Operational Program Research, Development, and Education, where the goal is to define the internal organization so as to meet the conditions laid down in the Researcher Charter and to fulfill the criteria for the bestowal of the HR Award. In addition, the strategy reflects the outcome of the initial analysis performed in the framework of the HR Award Project.

Preparing and approving the final form of the document and, where applicable, updates is the responsibility of the IEM Board.

Motivation

The mission of the IEM as a public research institution is to conduct high-standard scientific research that reflects society's existing and predictable needs. Indispensable part of the foregoing is providing support for a broad range of **real-world applications of the outcome of research through knowledge transfer. That includes the three principal motivating factors for cross-sectoral cooperation and knowledge transfer**:

Social responsibility

Knowledge transfer needs to be regarded in consideration of the scientific community's responsibility to society as a whole. Since scientific research is financed with public funds, namely taxpayer's money, it is the social responsibility of the scientific community to contribute to exploiting the potential of research in ways that benefit society. Endeavors to that effect must focus on the broadest range of both commercial and nonprofit applications, as opposed to pure commercialization only.

Source of income

Another key motivating factor is – if the outcome of research is used commercially – the prospect of income from commercial applications, which is an important source of funding for research. Financial motivation applies both in regard to researchers who are rewarded for their work and in regard to financial support for further scientific efforts of the IEM as a whole.

Promotional tool

No less importantly, research, as well as its outcome that proves to benefit society collectively or becomes commercially successful, is a highly suitable means for promoting science per se and for increasing its appeal to the general public. For the public judges science mainly through the prism of its contribution to society. Thus, it is indispensable to closely tie knowledge transfer to promotional activities, popularization efforts, and the presentation of achievements. Thus, the positive perception of science, in the sense of activities conducted by the Academy of Science, is another important motive for making and supporting knowledge transfer efforts.

Starting Points

Taking past activities into consideration, there are several areas of cross-sectoral cooperation and knowledge transfer in which the IEM has been active to a varying degree:

Research Conducted in Cooperation with Application Partners

This area includes activities generally referred to as applied research or development. In this type of research, the application partner is known in advance, is interested in the outcome of research, and typically takes active part in research efforts. Research activities conducted by the IEM are financed using public funds, the application partner's resources, or a combination of the two financing sources.

In this area, the IEM pursues active long-term partnerships with several organizations from the application sector. The partnerships mainly have the form of joint research projects financed in part or in full from public sources, particularly programs administered by the Ministry of Industry and Trade, the Technology Agency of the Czech Republic, and foreign organizations, such the EU's Joint Program – Neurodegenerative Disease Research (ADAIR Project, 2020-2022). Other efforts mainly comprise partnerships in the field of tissue engineering and the development of nanomaterials and materials for regenerative medicine, where the IEM is a member of NanoEnvioCz (www.nanoenvicz.cz), a broad research platform in the framework of which the IEM is chiefly responsible for analyzing the potential toxicity of nanomaterials under development. Within the platform, the IEM cooperates with both scientific and industrial organizations. In addition, the IEM is part of the EATRIS-CZ national infrastructure node whose mission is to pursue application with focus on personalized medicine.

Consulting and Expert Services

Consulting and expert services are a form of exploiting knowledge accumulated through past research, where the target group includes the commercial sector, public administration, and other clients. Services are typically provided at the request of the application party.

Even though the IEM offers consulting and expert services, partnerships of this kind currently tend to be marginal and incidental. Services of this kind are not actively promoted, and they are typically provided based on specific requests made by entities from the application sector.

Use of the Outcome of Independent Research in Real-World Applications

This area involves knowledge transfer in a narrow sense, where efforts are made to find applications for the outcome of independent research. In this case, the application partner is not known in advance, and needs to be found using suitable procedures. The grant of rights to use the outcome of research typically has the form of a license.

In the past, the use of the outcome of independent research in real-world applications has been significantly enhanced by the GAMA program administered by the Technology Agency of the Czech Republic, which provided financing for nearly 20 internal 'proof of concept' projects. Past experience and outcomes show that the program has made a major contribution as regards advancing the perception of this issue within the IEM, resulting in a partial definition of commercialization processes and guidelines. Directly in connection with the program, several licensing agreements have been signed with commercial partners for the use of research outcomes in the application sector. After the end of the program, however, continuing activities consisting of transferring the outcome of research toward commercialization in the application sector proved difficult to sustain in view of the lacking availability of human and financial resources.

Creation of Start-Up and Spin-Off Companies

Efforts to this effect typically consist of using the outcome of independent research in situations where there is no suitable application partner available, and commercial potential is exploited by its placement on the market through a company established specifically for this purpose.

In 2008, IEM founded Bioinova, a spin-off company whose purpose was to increase the application potential and the effect of the transfer of innovations created through research to clinical practice by establishing a connection to businesses and the application sector. In 2016, Bioinova became an independent entity in which the IEM holds no stake. Nevertheless, the IEM and Bioinova continue to cooperate on several joint research ventures.

Mobility

Knowledge transfer having the form of cross-sectoral staff mobility is typical for the university environment, where a cooperating application partner obtains qualified staff in addition to the outcome of a joint project (for example students who have completed graduate and doctoral programs).

Staff mobility (particularly graduate and post-doctoral students) is given long-term support by the IEM's management, where financing is mainly secured through grant projects. Most mobility transfers take place among research institutions; to a lower extent, staff mobility takes place vis-à-vis the application sector.

National and International Context

Strategic Documents at the National and European Levels

Similar to the targets and strategies listed below, research and development as well as strategic management at the IEM stem from the Czech Republic's fundamental strategic documents and the EU's documents, including:

- National Research, Development, and Innovation Policy of the Czech Republic 2021+
- National Priorities of Oriented Research, Experimental Development, and Innovations
- Innovation Strategy of the Czech Republic 2019-2030
- National Research and Innovation Strategy for Smart Specialization of the Czech Republic (National RIS3 Strategy)
- EU cohesion policy and its financial instruments, European structural and investment funds

Long-Term Targets

Cross-Sectoral Cooperation, Knowledge Transfer, and Intellectual Property Use

The IEM is one of the Czech Republic's major basic research centers, primarily specializing in basic and integrating research in the field of biomedicine. The IEM's research program covers current trends in the field, and it facilitates interdisciplinary approaches to dealing with major issues in biomedicine.

The long-term objective is to transfer relevant outcomes of research and development to the application sector in an effective manner, and to deepen cross-sectoral cooperation, both within the Czech Republic and in the international context.

Based on defined national priorities[1], specifically Priority 5. Healthy Population, the IEM will mainly direct applied research to the following areas:

1. **Origination and Development of Diseases**

    - Cancer
    - Nerve and mental diseases (neurodegenerative diseases)
    - Musculoskeletal disorders, inflammatory diseases, and immunity disorders

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[1] National Priorities of Oriented Research, Experimental Development, and Innovations

- Infections

2. **New Diagnostic and Therapeutic Methods**

   - In vitro diagnostics
   - Low molecular drugs
   - Biological drugs, including vaccines
   - Drug delivery systems
   - Gene, cellular therapy and tissue replacement
   - Development of new medical instruments and device

3. **Epidemiology and Prevention of Most Serious Diseases**

   - Cancer
   - Nerve and mental diseases (neurodegenerative diseases)
   - Musculoskeletal disorders, inflammatory diseases, and immunity disorders
   - Infections

General Targets

A. Developing cooperation in research and development across sectors, focusing on reinforcing various forms of cooperation with the application sector

B. Creating suitable conditions for effective knowledge transfer through the definition of internal processes and effective management of research outcomes

C. Using effective methods to protect intellectual property and to provide motivation for its creation, protection, and use

Target A: Developing cooperation in research and development across sectors, focusing on reinforcing various forms of cooperation with the application sector

- A1 Active search for opportunities to form partnerships with major players in the application sector, particularly opportunities for pursuing projects of application research, including mobility, contractual research, and research services, with a view to increasing income from private sources

Sub-activity	Who	Target status in 12/2023

Creating and presenting proposals for partnerships	OPPTT[2] and VO[3], PR	* Creating a standardized proposal and register of partnerships, including mobility * Increasing the number of projects executed together with organizations from the application sector, for example through research infrastructure services * Growing trend of income from private sources

- A2 Participation in regional and transregional structures, associations, clusters, and consortiums in relevant fields conducive to cross-sectoral cooperation

Sub-activity	Who	Target status in 12/2023
Membership in such associations as Transfera, CzechBio, use of information channels of these associations, the research outcome database in particular, CeTTAV	OPPTT, PR	* Establishing new contacts and partnerships through these associations * Presenting the IEM's achievements in databases

- A3 Participation in international RDI projects through interdisciplinary and cross-sectoral partnerships, particularly in the framework of the Horizon Europe program, participation in bilateral interinstitutional and international project teams and consortiums

Sub-activity	Who	Target status in 12/2023
Regular assessment of information and compilation of overviews of prospects of participating in international projects	OPPTT, VO, PR[4]	Participation in the preparation of at least five projects executed under Horizon Europe 2020 and other ventures

- A4 Improvement of researcher and student awareness of market needs, commercialization, and cooperation with the application sector

Sub-activity	Who	Target status in 12/2023

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[2] Project Support and Technology Transfer Department
[3] Head of Department
[4] PR Specialist

Provision of training and information to staff regarding the IEM's efforts pertaining to cooperation with the application sector	OPPTT, VO, PR, CeTTAV[5]	* Delivering training regarding commercialization and cooperation with the application sector * Informing staff via internal communication channels on a regular basis

Target B: Creating suitable conditions for the effective transfer of knowledge and technologies

Actions:

- B1 Strengthening expert resources for assessing the commercial potential of specific research outcomes

Sub-activity	Who	Target status in 12/2023
* Fine-tuning the method for assessing identified research outcomes * Increasing the number of Commercialization Council members by the addition of experts on such areas as clinical studies, medical devices, and risk capital	OPPTT, RpK[6]	Revising internal guidelines defining the process for securing broad technical assessment in terms of realistic potential for commercial use

- B2 Establishing a transparent and appropriately motivating environment for the creation and identification of research outcomes that are competitive and have an application potential

Sub-activity	Who	Target status in 12/2023
Revising the current motivation package (financial/non-financial motivation)	OPPTT	Revising internal guidelines

- B3 Creating conditions, financial conditions in particular, for the development of research outcomes and the identification of suitable partners for commercialization

Sub-activity	Who	Target status in 12/2023

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[5] Technology Transfer Office CAS
[6] Commercialization Council

* Creating a commercialization fund and rules for its use * Using suitable subsidy options to support commercialization	IEM management, OPPTT	Revising internal guidelines (establishing and topping up a fund as per the plan for the GAMA 2 project)

- B4 Strengthening cooperation with organizations active in specific research and development sectors, which can be expected to be able to perform the effective identification of potential partners from the application sector and, simultaneously, to provide appropriate technical consulting with regard to the use of the outcome IEM's research activities in real-world applications

Sub-activity	Who	Target status in 12/2023
Regular communication regarding market demand and opportunities versus solutions offered by the IEM	Management, OPPTT, external consultancy	Entry into agency agreements and into contracts ensuing from such agreements

- B5 Support for founding spin-off companies by the IEM's staff, subject to the proper settlement of legal issues, intellectual property rights in particular (it is assumed that the IEM will have no stake in such spin-off companies)

Sub-activity	Who	Target status in 12/2023
Informing staff of opportunities and conditions for setting up spin-off companies, providing management support	IEM staff, management	Revising internal guidelines Informing staff via internal communication channels

- B6 Supporting technology transfer, particularly through granting licenses for patents, and simultaneously increasing income from granted licenses

Sub-activity	Who	Target status in 12/2023
Offering research outcomes for licensing (upgrading and improving the attractiveness of the IEM website, using other information channels, databases)	OPPTT, PR	Granting at least two new licenses Growing trend of income from granted licenses

- B7 Promoting the IEM infrastructure using the expertise and skills of the IEM's staff (openness, PR, use maximization, definition of conditions)

Sub-activity	Who	Target status in 12/2023
Creating and presenting a portfolio of services relating to infrastructure use	OPPTT, THS	Minimum 10% infrastructure use by external entities

- B8 Increasing the volume consulting, advisory, and expert services provided to external clients

Sub-activity	Who	Target status in 12/2023
Creating and presenting a portfolio of commercial consulting, advisory, and expert services for external clients	OPPTT, VO	At least seven cases of consulting, expert services provided to external clients

- Improving awareness among the general public and experts regarding the application of the outcome of the IEM's research (IEM website, social media, intranet, seminars held throughout the IEM)

- Improving researcher and student awareness of technology transfer options, internal processes

Target C: Using effective methods to protect intellectual property and to provide motivation for its creation, protection, and use

Actions:

- C1 Improving staff awareness of the necessity to actively protect intellectual property with commercial potential created at the IEM with the aim of preventing the loss of intellectual property

Sub-activity	Who	Target status in 12/2023
Revision of the existing motivation package	OPPTT	Revising internal guidelines

- C2 Improving the effectiveness of assessment of methods for protecting intellectual property (protect – form / not protect / classify / stop protecting)

Sub-activity	Who	Target status in 12/2023

Defining transparent rules for the protection, use, expiration of protection, and other issues regarding intellectual property created as part of research conducted at the IEM	OPPTT	Revising internal guidelines Reduction of the number of legally protected research outcomes where minimal probability exists of commercialization or other applications

- C3 Improving researcher and student awareness of intellectual property use and protection

Sub-activity	Who	Target status in 12/2023
Providing training and information to staff regarding the IEM's efforts pertaining to the protection of intellectual property	OPPTT, CeTTAV	* Delivering training focused on the protection of intellectual property to IEM staff * Informing staff via internal communication channels on a regular basis