innovations for future...

Technology Transfer
at Masaryk University

Technpology Transfer Office
Masaryk University

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CTT
Technology
Transfer Office

UNIVERSITAS MASARYKIANA BRUNENSIS

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INVESTING IN YOUR FUTURE

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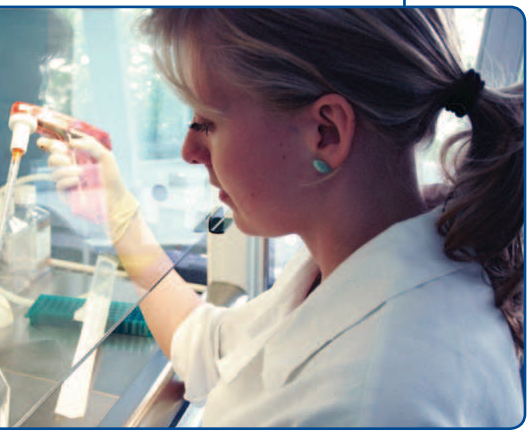
Technology Transfer: Natural Role of Universities

From time immemorial, the main objective of universities all around the world has been to provide quality education and research. Lately, another role of theirs has been coming to the fore – cooperation with the industrial and application sphere represented by activities known as "technology and knowledge transfer" – in other words, putting technology and knowledge into practice.

Universities are thus turning into institutions building up universally beneficial partnerships for common research, supporting practical application of their outputs and generating innovation potential. In the 21st century – considerably later than Western Europe and the USA – the Czech universities began to join in this process. Masaryk University was among the first to do so.



Strategy of Masaryk University

Innovations and technology transfer are among the strategic priorities of Masaryk University. As part of its long-term vision, MU supports putting results of research and development into practice in order to gain a strong and stable foothold in the area of commercial cooperation.

What methods is the university employing to achieve this? For example, building long-term relationships with industrial partners, cooperating with a network of intellectual property contact persons, introducing supportive tools to increase the application potential of research and developing services for researchers and partners from the application sphere.

A well-established technology transfer office is a vital part of this process. Technology Transfer Office of Masaryk University (hereinafter TTO) was established in 2005 with a definite goal: to support practical application of research results, to build bridges between the academic and commercial spheres, to set up ideal conditions for knowledge and technology transfer, to manage and protect intellectual property of MU, and to provide both scientists and companies with professional support and all related services.

Intellectual Property

What is Intellectual Property?

Intellectual property (IP) refers to products, inventions and other intangible products of human creativity, research and thinking. At universities it concerns results of research, pedagogical and other activities which were achieved while carrying out work or study assignments.

Intellectual property can be divided into several groups:

Industrial property: new, industrially utilizable results, chiefly inventions, technical solutions, industrial designs or registered trademarks

Intellectual property protected by other legal regulations, e.g. business secrets, confidential information or know-how

Original works: represent most of universities' intellectual property such as scientific publications, diploma theses, dissertations, software or databases

Database: a set of data protected by copyright law or by a special law of its producer

Why Protect Results of Your Work?

Intellectual property is not a material possession one could touch, yet it represents a vital form of asset. Often it is of extreme value and, as any other kind of property, it can be stolen or misused. That is why it requires effective protection.

Whereas one can easily lock up a house or put money in a safe, protecting intellectual property is not that easy. Some types of IP (especially original works) enjoy legal protection just by being created. Therefore, there is no need to register them in any way.

However, industrial property is a different cup of tea. One has to specifically ask for protection by filing required applications (e.g. patent) and thusly obtained protection is recorded in public registers (databases). A good strategy needs to be devised because it is a costly process. Only results with an economic/financial potential should be protected.

When considering the best way of protecting intellectual property one should always consult the TTO experts.

What to beware of?

Any public release of information – e.g. in specialized literature – can make it impossible to apply for patent

Erroneous evaluation of application potential of scientific research, overestimation or underestimation

Underestimating market research; a thorough research of the already existing solutions is necessary to make sure an invention is original

Releasing false or incomplete information can also hinder protection of results

The expert assistance provided by TTO will help you to avoid these problems

What is…?

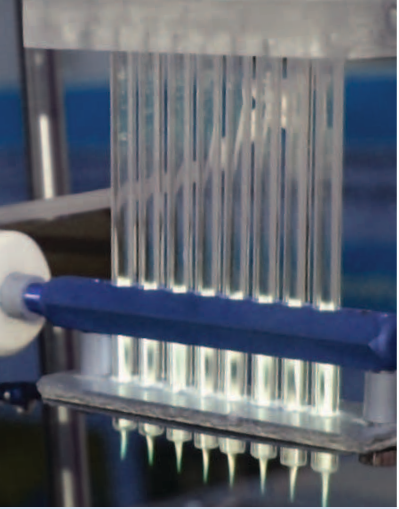
Author: an individual who created the work. In case of a collected work it is also the person who selected the individual contributions or edited the work.

Know-how: a set of knowledge, skills and technological, operating, business, scientific, research-related or other experience and expertise which is not generally accessible or known. Furthermore, it has to be substantial, describable (existing in an objectively perceivable form) and commercially applicable.

Commercialization: financial valorization of an intellectual property of MU, e.g. by selling licences (franchising), obtaining shares in spin-off companies or by providing services based on this intellectual property.

Industrial design: appearance of a product or its parts including its lines, colours, shapes, structure or used materials (and possibly the way it is decorated).

Utility model: a form of protection of technical solutions that are new, exceed the frame of expert skills and are industrially applicable. It represents a lower level of protection than patents.

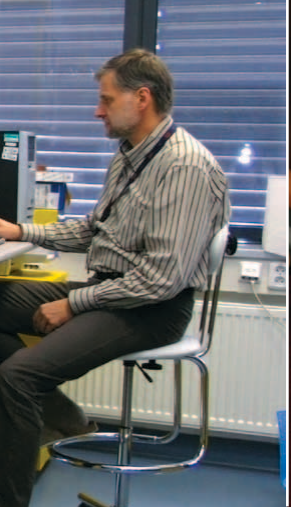


Research Results and Their Potential

Publication? Just One Step

University research often yields interesting results which would deserve, in consideration of their potential commercial application, due care and attention. Yet their commercial potential remains mostly dormant and they do not bring in the desired financial gain. The principal output of a research activity is usually publication of a paper in scientific journals. Even though publishing in specialized literature is an important indicator of quality, it is a pity – for authors, universities and society – not to make the most of a result and not to bring it closer to practical application.

If a result is successfully applied it brings its author both money and publicity and the same goes for Masaryk University. Technology transfer helps it to establish new partnerships, build relationship with the public and increase its prestige.



Who Owns Inventions?

If a researcher employed by Masaryk University comes up with a result which can become a subject of industrial property (an invention) he/she is, on the basis of Act No. 527/1990 Coll., bound to notify (through TTO) the University in writing. The owner of the invention is in fact the employer (MU); the researcher is its author. The employer will consider asserting his/her property rights to the industrial property. If he/she chooses not to, the rights pass on to the author who can then manipulate with the invention freely.

The enforcement of property rights to industrial property or original works is stipulated in the internal standards of MU – particularly in the directive "Intellectual Property at Masaryk University".

The author need not worry about his/her financial interest concerning the prospective commercialization of his/her product – the university regulations for rewarding authors are highly motivational.

Commercialization: Opportunity for Scientists and University

Let's Not Be Afraid of Commercial Cooperation!

Should universities be concerned with commercialization of their outputs? They definitely should. It is confirmed not only by the positive experience of renowned European and American universities but also by the internationally successful products created at Czech universities.

If research results are commercialized in a professional way (complying with legislation, respecting the purpose of the given research activity) and backed up with a thorough market research, the technology transfer from universities to practice is universally beneficial. Inventing for its own sake can increase the researcher's reputation; however, it usually does not bring the right kind of profit.

Linking Two Worlds

The academic and business environments do have different goals, methods and traditions. The differences between them create a gap which may prevent scientists and businesspersons from understanding each other. Even if they have a common goal they often use a "different language".

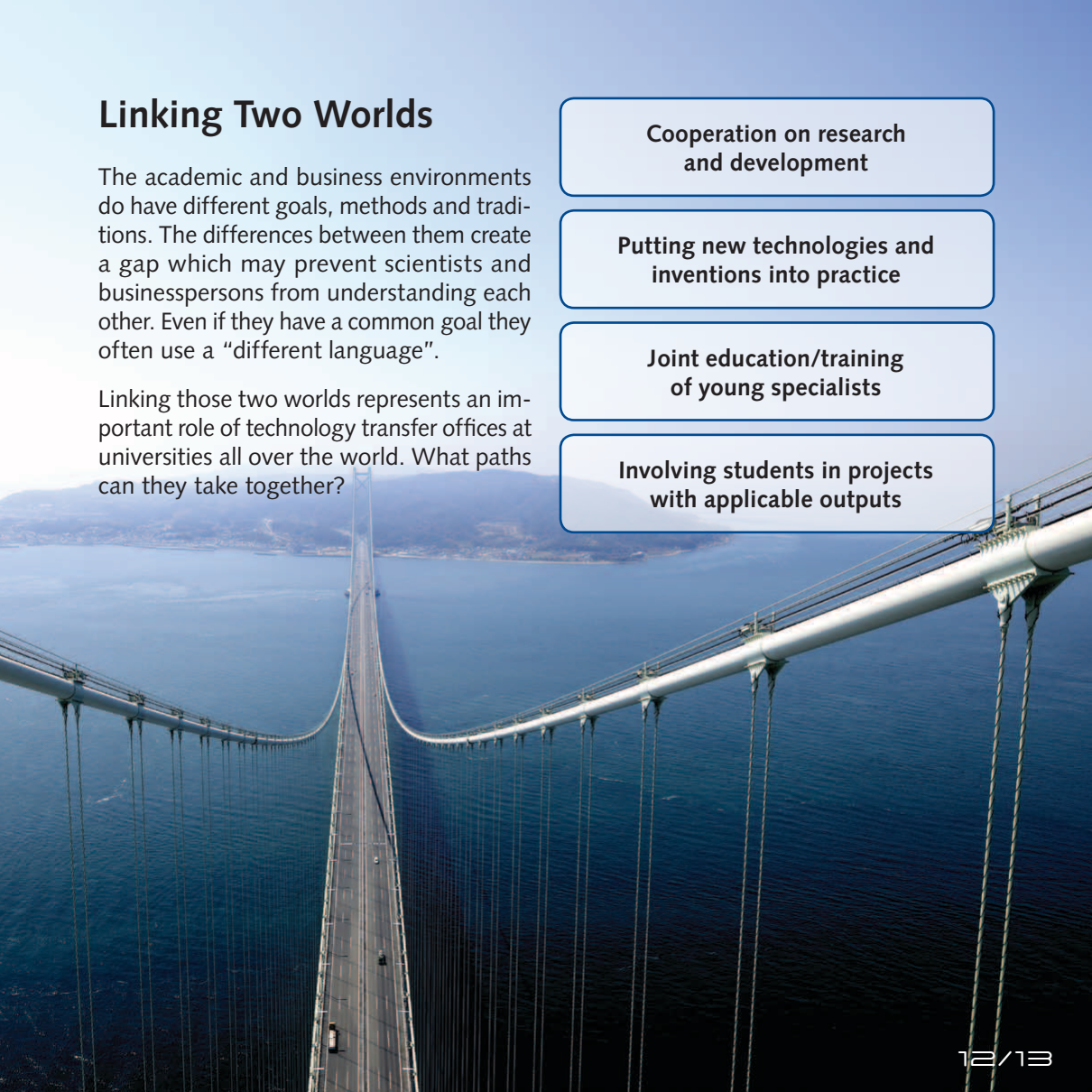
Linking those two worlds represents an important role of technology transfer offices at universities all over the world. What paths can they take together?

Cooperation on research and development

Putting new technologies and inventions into practice

Joint education/training of young specialists

Involving students in projects with applicable outputs



Benefits for Authors

Putting commercially attractive research results to practice benefits not only the society but also the authors, their teams or workplaces. The transfer by selling licences or patents brings the authors royalties. If a spin-off company is started the authors get an opportunity to develop their intellectual property in this company under preferential terms.

Besides gaining financial profit the researchers can benefit from promoting their workplaces. Masaryk University takes part in advertising every successful transfer and thus seeks opportunities to ensure further cooperation with its partners.

Research teams can also benefit from long-term support of TTO concerning legal matters, market monitoring, seeking new opportunities, etc.

And What's in It for the University?

For Masaryk University technology transfer represents the best way to build relationships with industrial partners, the commercial sphere and the public in general. It is a unique way to present its research achievements and their benefits to the public.

Technology transfer projects crowned with introducing an invention to the market are the most visible public indicators of the quality of research. All this strengthens the position of MU among other universities and helps to build its reputation on both the national and international levels.

The income from a successfully completed transfer (e.g. license fees) represents a side benefit for MU; it can help to finance other research and transfer activities.

Methods of Commercialization

Patent as Protection

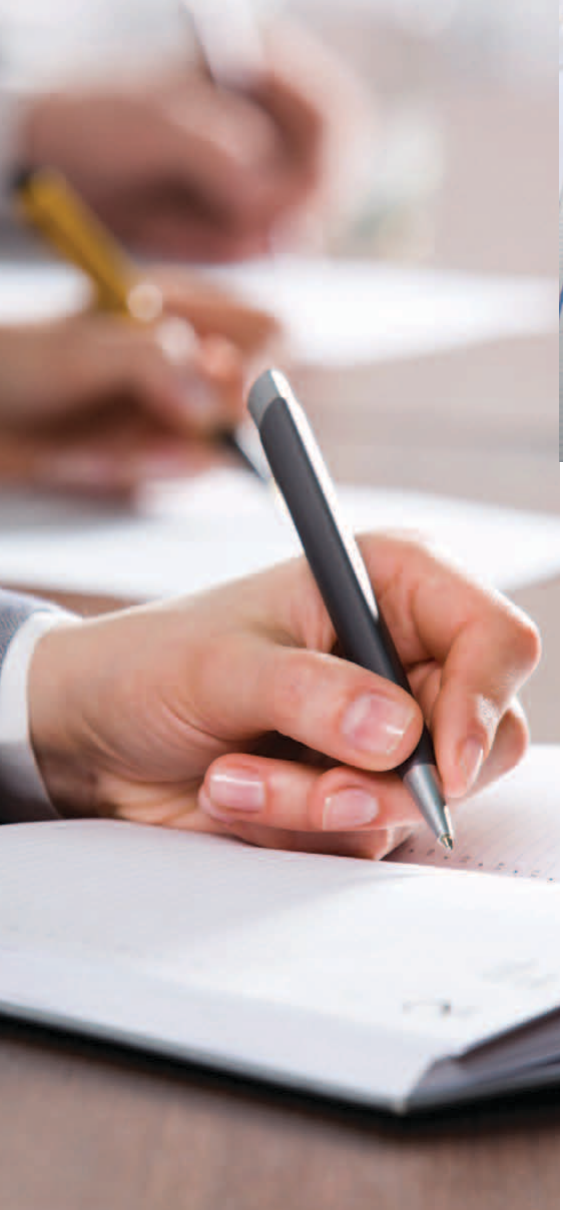
Patents are granted for new inventions, i.e. industrially applicable results of an inventive activity. Discoveries, scientific theories and mathematical methods, artistic creations, plans, rules and ways of carrying out intellectual activities, computer programs or ways of supplying information are not considered to be inventions.

The owner of a patent has exclusive rights to use the protected invention, give other persons his/her consent to use it (e.g. by a license) and to transfer the patent to another person. An invention which has been granted patent protection cannot be manufactured, sold or used in any commercial way without the consent of its owner.

Patent Application

One has to ask for patent protection by means of a patent application. Patent procedures represent a relatively complicated and expensive process when even a minor error may cause failure. By taking advantage of the TTO experience one can avoid unnecessary complications.

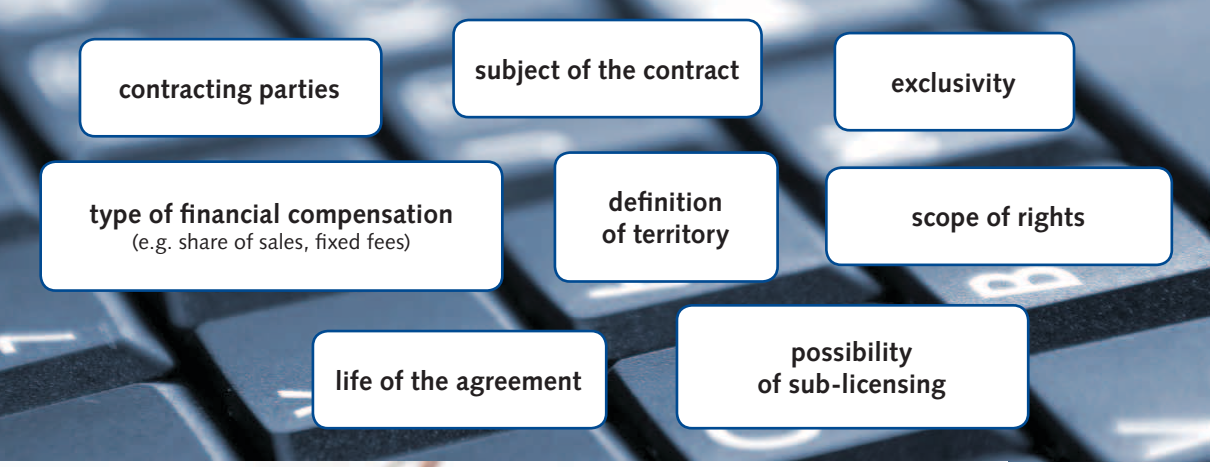
Because one of the main criteria for granting a patent is the novelty of an invention, a thorough research and analysis of the current state of technology on the market have to be carried out first. An application for industrial-legal protection can be filed both on the national and international levels. However, one always has to comply with the rules established by the laws and MU regulations.



License: Franchising

Having a license means being allowed to use someone else's intellectual property. Due to the fact that licensing conditions can be easily adjusted it represents a flexible and frequently used way of commercialization.

Concluding a licensing agreement – that is to transfer a technology by granting a license – is advisable either for subjects of intellectual property having the form of general technological principles or for those with a good market potential not requiring substantial funding for their prospective further development. In practice, licences are granted primarily for original works and for subjects of industrial property.



Licensing Contract Must-Haves

By granting a licensing agreement, the licensor entitles the licensee to use his/her incorporeal property (intellectual property rights). In other words, a license entitles the licensee to exercise the rights to the industrial property in the territory and to the extent agreed upon in the contract. At the same time the licensee is bound to provide payment or other tangible values. A licensing agreement has to exist in a written form.

TTO provides legal experts to help you decide if a specific intellectual property is suitable for licensing and make sure you get a perfect licensing agreement.

Spin-off Company: Great Way to Do Business

A spin-off is a company started in order to utilize and develop university's intellectual property into the form of a marketable product or service. Intellectual property (a research result) is usually granted to the spin-off by means of a licensing agreement. Masaryk University can (but does not have to) get some shares in the spin-off company. On the other hand, the company can negotiate the use of the university's labs or other services. Usually, the authors of the intellectual property participate in the company's operation.

It mostly concerns small and medium companies which do not have sufficient funding to implement their investment objectives; therefore they welcome investors from the same field. Association with an investor is desirable also because starting and managing a company is rather demanding as for financial, taxation, business and personal aspects.

Did you know that...
Masaryk University already took part in starting 13 spin-off companies?

How to Start a Spin-off?

First and foremost, there have to be some research and development results, preferably new and innovative, which are commercially applicable and can be further developed by the company.

When starting a spin-off, scientists can settle their relationship towards the intellectual property with MU, e.g. by signing a licensing agreement. If it proves to be unfavourable MU can also provide the intellectual property as its investment into the company. When MU does not get any property shares in a newly started spin-off, the issue of intellectual property is dealt with right after the company is founded. If the owner decides to give MU a property share the whole process becomes more time-consuming and legislatively complicated. However, this method is rather commonly used all around the world.

Starting a spin-off is a complex process requiring experience and profound knowledge of both the academic and the commercial environments together with a precise contractual stipulation of the conditions. These services are provided by TTO.

Proof of Concept

The market plays by different rules than labs. What works in a test tube needn't work for commercial companies. So called Proof of Concept (Poc) helps to answer the question whether a scientific output has a commercial potential; it is a financial incentive to verify or finish the development of an existing scientific result. Masaryk University started granting these incentives in 2012 and since then, it helped several project to yield applicable outputs.

The activities within Proof of Concept are not research activities but verification – e.g. of a technology that works on a laboratory scale but so far isn't suitable for commercial application. The goal of PoC is to evaluate its potential and finish its development so that it's applicable on the market.

If a result obtains this support and is successfully verified, improved or further developed, demands are made on its subsequent commercialization, which the applicants should be always aware of.

At MU, Proof of Concept is dealt with by the Technology Transfer Office. If you're interested in calls that are being prepared or if you need advice, don't hesitate to contact us

Successful MU Inventions

Plasma Jet

The device is capable of altering absorption properties of materials, repairing defects and sterilizing surfaces. It allows precise cutting of tiles and can just as well be used for surgical operations or for removing corrosion. There is also an aesthetic use to it – creating ornamental patterns on porcelain glaze.

Elimination of Yperite Warfare Agent

This unique method uses special enzymes to dissolve the dangerous chemical substance in an environmentally friendly manner. Not only is it more eco-friendly than any other method but it is also much more effective; a single molecule of the enzyme dissolves thousands of molecules of yperite.

Bambusurils – Highly Versatile Compounds

This newly developed class of macrocyclic compounds can be used e.g. to treat sewage, to create an active separation surface for chromatography, to form a matrix for controlled drug delivery or to synthetize various gustatory substances. Bambusurils can also be used as sensors. Their properties can be easily altered depending on their specific use.

New Method of Analysing Metals in Liquids

The method is based on generating aerosol, which makes it possible to determine the content of a specific element. Its main advantages include low cost, high speed and easy transportation and filing of the created samples. The method serves to identify metals such as lead, tin, zinc or cobalt in liquids ranging from blood to beverages.

Diagnostics of Invasive Aspergillosis

The innovative method of diagnosing invasive aspergillosis uses a quantitative polymerase chain reaction in biological samples taken from the bodies of the immunocompromised patients. The method is based on isolation and detection of *Aspergillus Fumigatus* DNA, chiefly in samples of broncho-alveolar lavage or peripheral blood.

Diagnosis of Patients with B Cell Chronic Lymphocytic Leukaemia

It is a new method of establishing the diagnosis of B cell chronic lymphocytic leukaemia from a biological sample taken from the patient‘s body on the basis of establishing the state of the specific signalling pathway.

When Things Turn Out Well

1 *Doc. Martin Zvonař (Faculty of Sport Studies MU) and Josef Hanák (J HANÁK R s.r.o.), cooperation on producing biomechanical footwear*

2 *The Best Cooperation of 2014, appraisal of the project of MU scientists with the companies Photon Systems Instruments and Enantis.*

3 *The European Seal of e-Excellence 2013 award for the spin-off INVEA-TECH*

4 *First place in the Czech Innovation 2012, doc. Jan Preisler and Dr. Pavla Foltynová*

Professional Support: Technology Transfer Office

The role of TTO is to support cooperation between the scientific community and the industry as well as to help putting research results into practice. Its portfolio aims both at scientists and commercial companies. What are its main tasks?

- **Being the primary MU contact point for companies**
- **Negotiating cooperation between academic and business spheres**
- **Supporting application of research results**
- **Protecting and administrating intellectual property**
- **Promoting MU research activities**
- **Training and consulting in the area of technology transfer and intellectual property**

The TTO team consists of business development managers, project managers, lawyers and economic/administrative staff. If you are not sure whom to contact, use some of the following contacts and your inquiry will be handed over to a competent worker.

+420 549 498 016

ctt@ctt.muni.cz

CTT

Technology Transfer Office

Services for Scientists

Intellectual Property

- Providing protection of intellectual property resulting from research
- Providing authors of inventions with administrative and legal support
- Cooperating on application of knowledge and technology
- Dividing incomes
- from technology transfer
- Consulting in the area of intellectual property rights

Business Development

- Seeking commercial partners for contractual research
- Obtaining financial resources to fund contractual research
- Negotiating and drafting contracts
- Supporting business innovations and starting of spin-off companies
- Offering and selling technologies and knowledge (inventions, know-how, software etc.)

Promotion and Training

- Training scientists and students: intellectual property, business activities, project management
- Organizing seminars, workshops and consultations
- Presenting research results at conferences and fairs
- Presenting results of technology and knowledge transfer at MU

Services for Companies

- Offering technologies for licensing
- Seeking scientific partners for contractual research
- Assisting in preparing grant applications, innovation vouchers etc.
- Obtaining secondary financial resources for contractual research
- Utilizing research, development and laboratory capacities of MU
- Providing legal requisites for contractual research
- Expert consulting in the area of technology transfer
- Taking part in setting up effective protection of intellectual property
- Helping to organize student internships
- Commercial forms of training/education

Contacts

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