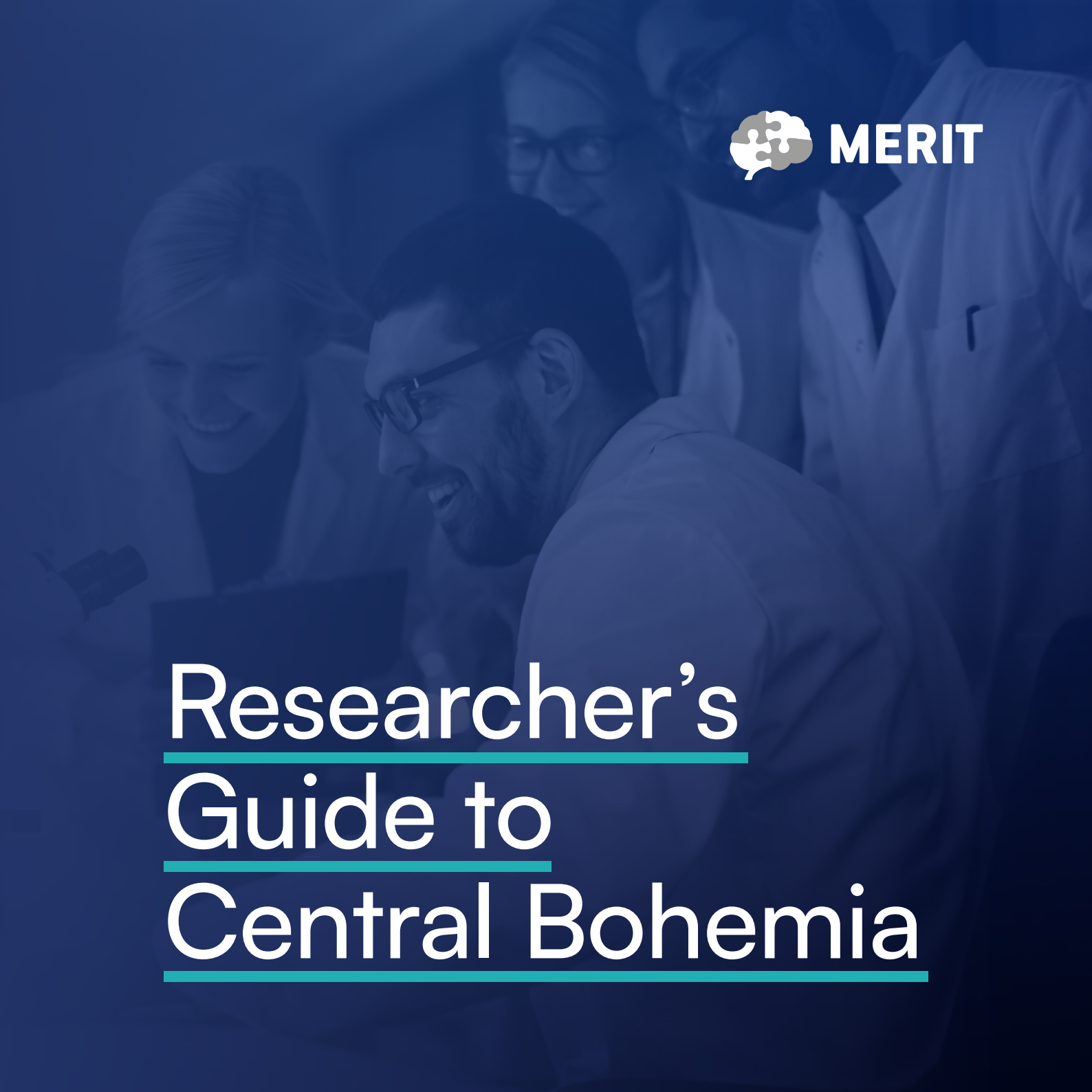


MERIT

Researcher's Guide to Central Bohemia

Introduction

The Researcher's Guide to Central Bohemia offers valuable and practical information for the recipients of the MERIT Fellowship Programme, as well as for any other international scientists newly arriving in the Central Bohemian Region.

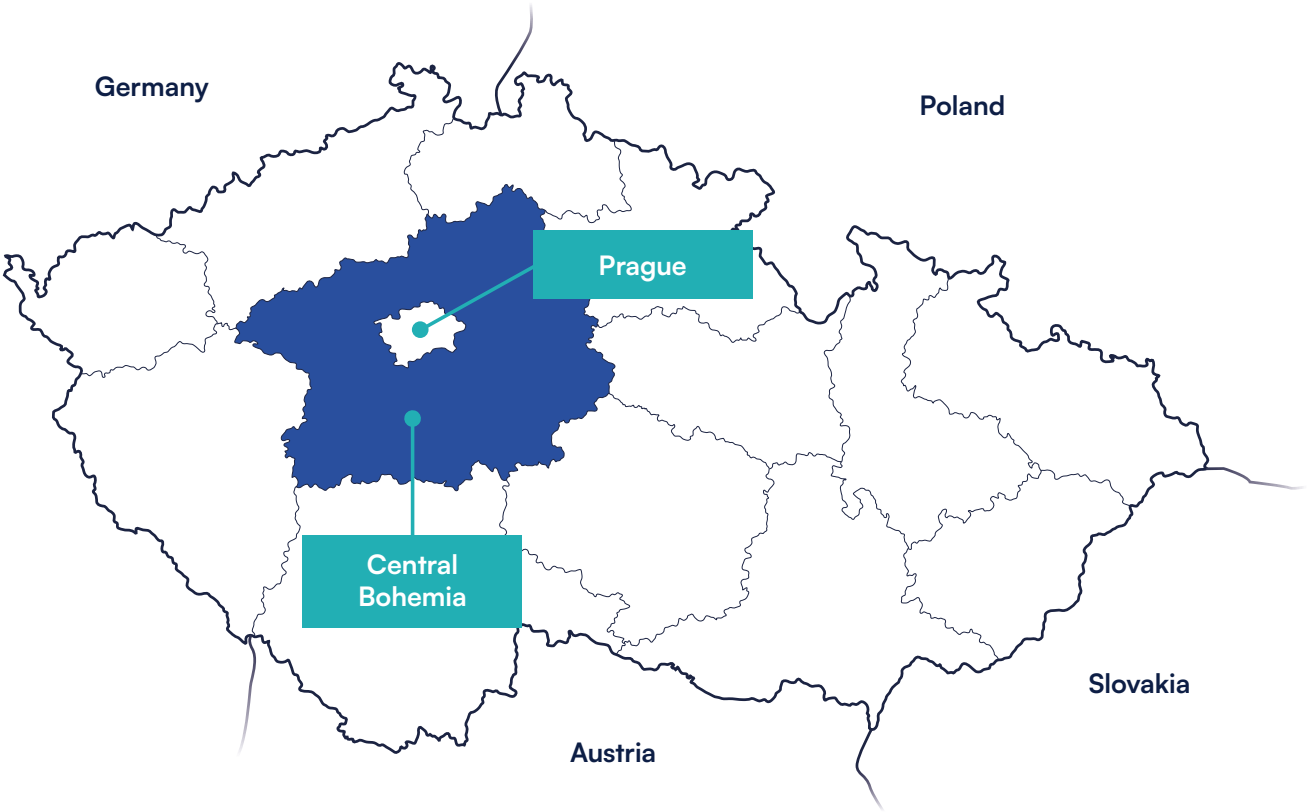
MERIT website

Content

Welcome to Czechia

1.1 Central Bohemian Region and Prague

Welcome to the Czech Republic, a charming and economically developed country nestled in the heart of Europe. As you embark on your journey as a scientist new to the country, your workplace awaits you in the Central Bohemian Region or directly in the vibrant capital city of Prague. The Central Bohemian Region, the largest and most diverse region in the country, offers an enchanting blend of old-world charm and modern opportunities. With its sprawling landscapes, quaint villages, and proximity to Prague, it's the perfect place to start your Czech adventure.



Imagine conducting your research in serene rural areas, surrounded by breathtaking scenery, while still having easy access to the dynamic culture and social life of Prague. The region hosts a vibrant community of small and large enterprises, making it a hub of national and international importance. In Central Bohemia, you'll discover **27 research centres and universities** that nurture innovation and collaboration. Key industries, such as the automotive, engineering, food processing, and chemical industries, thrive in this strategic location. The region's economic vibrancy offers an exciting environment for scientists and professionals alike. Explore the charming towns within Central Bohemia, including Kladno, Mladá Boleslav, Příbram, Kolín, and Kutná Hora, each with its unique cultural heritage and hidden gems waiting to be discovered.

And the best part? The Central Bohemian Region is seamlessly connected to the heart of Prague, ensuring you can enjoy the bustling city life and its rich history, just a stone's throw away. With a history spanning eleven centuries, the **capital city of Prague** has evolved into the captivating city you see today. This city of dreams s home to over 1.3 million residents. Prague is a favourite tourist destination and offers a wide variety of interesting places to visit and possibilities for spending your free time in good company. Prague is known for its excellent public transport coverage, including great train or bus connections to and between Central Bohemia. With direct flights to all European countries, you can embark on new adventures within just a three-hour flight.

1.2 Practical information for living in Czechia

Public Transport

To travel from Prague to destinations located in the Central Bohemian Region, consider using buses or trains. Bus tickets can be bought directly from the bus driver or from nearby ticket machines, often found at metro stations and bus stops. Train tickets can be bought at the Main train station (Hlavní nádraží) or Masaryk train station (Masarykovo nádraží) or any local train station in the Region. Most of these places accept credit cards, but it's a good idea to have some small cash on hand for added convenience. For seamless navigation across the Central Bohemian Region and Prague, the IDOS application[1] is your trusty companion. It provides valuable information for bus, metro, tram, and train connections.

IDOS App[1]

In term of public transport, the Central Bohemian Region is part of Prague Integrated Transport (PID), which has thoughtfully divided the network into various zones. The pricing for your journey depends on the specific zones you travel through. In Prague, you'll encounter zones labelled P, 0, and B, each with its own fare structure. For travel outside Prague, in the Central Bohemian Region, you'll encounter tariff zones numbered from 1 and upwards. To explore ticket details, zones, and corresponding prices, visit this link[2].

Zones, ticket details[2]

Within the heart of Prague, you can use metro and trams in addition to buses. For a quick reference to short-term ticket prices and options, take a look at this handy guide[3].

Handy guide[3]

Accommodation

It is very possible that for the first couple of days or weeks you will need to stay in a hotel or an apartment. These are some platforms where you may find short-term accommodation:

- www.booking.com
- www.trivago.com
- www.airbnb.cz
- www.coskhouse.com

For many foreigners in the Czech Republic, renting an apartment is the preferred way of settling down. The easiest and most efficient way to discover your perfect home is through a trusted real estate agency. While enlisting the services of a real estate agency may involve an additional fee, it is well worth it, as they provide valuable legal services such as drafting rental contracts and more. It's important to note that agency fees may vary, so it's advisable to confirm the specifics with the agency and align them with the latest regulations.

However, if you prefer a more hands-on approach and have experience in independent property rental, you can opt to find properties without the assistance of a real estate agency. Websites like Bezrealitky[4] facilitate direct contact with property owners. In terms of cost, you'll find that prices in the Central Bohemian Region are notably more affordable than those in Prague. Life in Prague offers everything the capital city has to offer. Whether it is the availability of all services, but also the hustle and bustle of everyday life. Life in the Central Bohemian Region can offer more tranquillity and beautiful nature.

Bezrealitky[4]

How to open a bank account

Opening a bank account in the Czech Republic is a very easy process as long as you follow certain rules. You will need to show two official identification documents in the bank. For this purpose, you can use your passport, ID card, driving licence, birth certificate, health insurance card, proof of address (you can bring your accommodation contract which you will get during your renting/buying property), residence card or even your employee card. In the Czech Republic you may choose from more than ten different operating banks. Credit and debits cards are accepted in most supermarkets, shops and restaurants. However, cash transactions are also used for a lot for everyday purchases, especially outside the city of Prague. Checks are not commonly used in the Czech Republic.

Driving licence

If you are an EU citizen and a holder of driving licence issued by another EU country, you are allowed to drive a motor vehicle in our country without having to change any official documents. If you would like to stay in the Czech Republic for the long term, it is advisable to replace the document. The process and requirements for EU citizens may vary, so we recommend staying informed by getting the latest information provided by the Czech authorities for precise details.

Driving licence[5]

If you happen to be a third-country national residing in the Czech Republic either on a permanent or temporary basis for more than one year, it's mandatory to exchange your foreign driving license for a Czech one. For comprehensive guidance on the exchange process and requirements for third-country nationals, please visit the following link[5].

National Holidays

When you live in a new country, it may be useful familiarise yourself with the dates of national holidays. These special occasions can bring not only unique experiences but also some restrictions on the operating hours of offices, shops, and various institutions. These are the national holidays in the Czech Republic:

- 1 January - New Year and Restoration Day of the Independent Czech State
- March/April - Good Friday & Easter Monday (movable holidays that depend on the lunar calendar, their dates change each year)
- 1 May - Labour Day
- 8 May - Victory/Liberation Day
- 5 July - Saints Cyril & Methodius Day
- 6 July - Jan Hus Day
- 28 September - Czech Statehood Day
- 28 October - Independent Czechoslovak State Day
- 17 November - Struggle for Freedom & Democracy Day
- 24 December - Christmas Eve
- 25 & 26 December - Christmas

1.3 Personal and civil life

Kindergartens

Before embarking on your search for a suitable kindergarten, there are a few important considerations to keep in mind. First, ensure that your child is registered with a paediatrician, as their signature will be required for the application process. Additionally, it is advisable to follow the Czech vaccination calendar for your child's health. However, if you prefer not to vaccinate your child, there are alternative options such as forest clubs[6] or a community school.

Forest clubs[6]

You have the flexibility to choose between public and private kindergartens. Public kindergartens are free of charge but come with specific conditions, including a permanent or long-term residence permit in the Czech Republic and a minimum age requirement of three years before 1 September. Private kindergartens, while requiring a school fee, offer alternative options for your child's education.

Primary schools

In the Czech Republic, public primary schools are tuition-free, while private schools typically require a fee. School attendance is compulsory, applying to children of foreign nationals residing in the country for longer than ninety days. Primary school usually begins around the age of six, and the minimum compulsory attendance is nine years. To find the most suitable school for your child, we recommend seeking advice and references from your colleagues. Most municipalities have several primary schools to choose from.

Health Care

Accessing healthcare in the Czech Republic is important for your well-being. It's essential to be prepared for potential wait times when scheduling appointments with doctors. To find a suitable doctor, you should first check if your insurance company has a contract with a specific clinic. Please note that not all clinics accept new patients at all times, and availability may vary.

As soon as you arrive in the Czech Republic, we recommend that you register with a **general practitioner** and undergo an entry checkup. Scheduling this appointment as soon as possible is advisable, as it can take several months to secure a slot. In the event you fall ill and require a consultation, having your designated doctor is crucial. Besides that, if you need to visit a specialist, sometimes they require a written recommendation from your general practitioner. If you must visit a doctor who has a contract with a different healthcare company, your provider will reimburse the doctor, but only in the case of an emergency.

It's important to be aware that obtaining a health insurance card may take a few months. While waiting for your card, your Host organisation's HR department can assist in obtaining confirmation of your insurance.

Many clinics offer English-speaking services, although you may encounter situations where receptionists do not speak English fluently. To find a list of private clinics who have English-speaking doctors, contacts to some pediatricians, dentists and gynecologists in Prague and other valuable health-related information, please visit this website[7].

health-related information[7]

1.4 Employment of researchers

Immigration — Visa

The conditions for entering, staying and working in the Czech Republic depend on your nationality, and the purpose and duration of your stay in the Czech Republic. EU citizens (as well as citizens of Iceland, Norway, Liechtenstein and Switzerland) may stay and work in the Czech Republic without a special permit. A valid travel document (passport or national identity card) is sufficient. For all information for EU citizens and their family members, consult the website of the Ministry of Interior of the Czech Republic[8].

Third-country nationals need to contact a Czech Embassy in their home country and apply for one of the residence types of visas. There are three types of visas or residence:

- Short-term visa for stay[9] of up to 90 days.
- Long-term visa for stay[10] over 3 months (the purpose of scientific research).
- Employee Card[11] combines both the residence and work permits, it is a long-term residence permit for employment in the Czech Republic.

Immigration falls under the jurisdiction of the Ministry of the Interior of the Czech Republic, and you can find detailed information on their official website.

Ministry of interior[8]

Short-term visa for stay[9]

Long-term visa for stay[10]

Employee Card[11]

Family Members and visa conditions

If your family members (partner, spouse, or children) are joining you in the Czech Republic, the rules for their residence will vary depending on their nationality and your situation. For specific information on family member visas, please visit the Euraxess website[12].

After your arrival to the Czech Republic

EU citizens are required to report their presence to the competent department of the Foreign Police if their stay exceeds 30 days. For more information, consult the Ministry of the Interior's website[13]. Citizens of third countries must report their presence within three days of their entry into the Czech Republic. Detailed information can be found on the Ministry of the Interior's website[14].

Euraxess website[12]

Ministry of the Interior's[13]

Ministry of the Interior's[14]

Work issues

When working in the Czech Republic, it's essential to be aware of tax and insurance deductions:

- Personal income tax is 15% and is calculated based on your gross income.
- Social insurance is 6.5% and is also calculated from your gross income.
- Health insurance is 4.5% and is calculated from your gross income.

All individuals working in the Czech Republic are required to be part of the public Social Security system, which includes sickness insurance, pensions, and contributions to the state employment policy. Foreign nationals are obliged to have valid health insurance. There are two types of health insurance: public and commercial. For detailed information, please visit this website[15].

Health insurance information[15]

Working conditions

Typical working conditions in the Czech Republic include:

- Working hours: 8 hours per day.
- Holidays: 20 days per year, although most employers offer 25 days of holiday per year.
- Employers may also provide additional benefits, such as home office arrangements, sick days, lunch coupons, contributions to sports, culture, and holidays, and more.

For specific details on your working conditions, consult your employment contract or your employer.

Science in Czechia

2.1 What, who and how

At the very beginning, it is useful to start with the terminology. Do not get confused, but in Czechia the terms science (věda) and research (výzkum) are often used as synonyms. You can find a Vice-Dean for Science and at the same time a Vice-Rector for Research and Development. To make it even more confusing, the Minister for Science, Research and Development (if there is one in the Czech government) is presiding over the governmental Council for Research, Development, and Innovation.

If you will be discussing science policy, just keep in mind that those involved in basic or fundamental research like using the word science. Applied research representatives and proponents of academia-industry collaboration prefer using the term research, or the phrase research & development.

What is in fact the difference? Let's have a look at scholarly books: Oxford Dictionaries (on-line, 2022) states that **science** is *„the intellectual and practical activity encompassing the systematic study of the structure and behaviour of the physical and natural world through observation and experiment*" whereas **research** is *„the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions.*" It is not extremely important, just keep in mind that some people are a little bit sensitive when it comes to using a certain terminology.

Investment into R&D&I

Regarding the investment into research, development and innovation, according to the data of the Czech Statistical Office the total amount reached almost 122 billion Czech crowns in 2021. Like in 2020 (113 billion CZK), this sum represented two per cent of the Czech gross domestic product (GDP). Similarly, as in other development countries, the business or private sector is responsible for sixty per cent of the overall sum, whereas the public sector contributes about one third. A rather significant portion, around seven per cent, comes from European Union sources. By the way, the European money plays a crucial role in designing the Czech research landscape. With the help of a specific operational programme during the 2007-14 EU programming period, **40 regional research & development centres** were supported as well as **8 European centres of excellence**, located outside Prague.

Where to apply for projects

Most of the public money invested into research and development are channelled through several agencies and institutions. The **Czech Science Foundation** (Grantová agentura České republiky[1]) supports fundamental research across various categories including junior star grants and incoming postdoc individual fellowships. The **Technology Agency of the Czech Republic** (Technologická agentura ČR[2]) supports applied research and experimental development mainly through mutual cooperation between research organisations and business. International cooperation, research infrastructures and various programmes co-financed by the European Union are administered through the Ministry of Education, Youth and Sports[3]. There is also a specific agency dedicated to support medical research – the Agency for Medical Research of the Czech Republic (Agentura pro zdravotnický výzkum České republiky[4]) and selected ministries sponsor research and development in their specific domains.

Czech Science Foundation[1]

Technology Agency of Czech Rep.[2]

Ministry of Education[3]

Medical Research of the Czech Rep.[4]

Czech research landscape

There is a significant number of 'research organisations' forming the Czech research and development landscape. There were 228 of these institutions in the official register[5] as of September 2023, including private companies, museums, galleries and university hospitals. There are two major institutional actors in the R&D domain funded by public sources – higher education institutions (vysoké školy) and the Czech Academy of Sciences (Akademie věd ČR[6]). In 2023, there were 26 public, 2 state and 22 private **higher education institutions**. The involvement of universities in research is rather strong mainly at six leading research universities: Charles University (Prague), Masaryk University (Brno), Palacký University in Olomouc, Czech Technical University in Prague, Brno University of Technology, and University of Chemistry and Technology Prague, which together comprise the Association of Research Universities. The **Czech Academy of Sciences** consists of 54 individual public research organisations located in Prague and elsewhere. Its primary mission is to conduct research in a broad spectrum of natural, technical and

Official register[5]

Czech Academy of Sciences[6]

social sciences and the humanities.There are 48 unique large research infrastructures listed on the Czech Roadmap[7] (either located in Czechia or abroad with Czech participation) operating in six scientific fields: physical sciences and engineering, energy, environmental sciences, health and food / biological and medical sciences and social sciences and humanities / social and cultural innovations.

Czech Roadmap[7]

R&D&I policy

Regarding the Research, Development & Innovation policy in Czechia, there are three main important actors. The main central administrative office responsible for the research and development policy is the Ministry of Education, Youth and Sports, whereas The Ministry of Industry and Trade supports experimental development and innovations[8]. A significant role in the system is played by the Office of the Government[9] under which the Section for Science, Research and Innovation[10] operates together with the Research, Development and Innovation Council[11]. The Council (RVVI) is an expert and advisory body to the Czech Government consisting of 15 members representing the grantors, research organisations or business. Depending on the political situation and negotiations, a minister for this field could be appointed.

experimental development and innovations[8]

Office of the Government[9]

Section for Science, Research and Innovation[10]

Research, Development and Innovation Council[11]

2.2 Publish or perish

This statement about scientists and their need to publish is true all over the world – we should share our ideas in order to contribute to the accumulated knowledge in our scientific fields. It sometimes seems that publishing itself is more important than the knowledge. Scientists have to pay high attention how and where to publish their works, who and how they cite, what conclusions they derive at, how well they combine theoretical and empirical parts, etc. In short, scientific writing and publishing have become a specific discipline of their own, requiring various skills and resources – financial as well as human.

Czech story

Publishing patterns (on national, institutional and on individual levels) in Czechia have been affected by several factors. The first factor is universal across the globe. Your publishing depends to a great extent on your discipline. In some fields, people publish in scientific journals every month or even more often, in others they spend years on monographies. The number of authors also differ significantly across disciplines – from one sole author to tens or hundreds (even thousands!!) of contributors.

The second factor reflects the policy in each institution. In Czech institutions, there are sometimes internal guidelines (written or just spoken) towards publishing in general. Some institutions have a strict central policy, others leave publishing up to the individual researchers. However, at one university (especially those comprised of heterogeneous faculties), the publishing policy can differ across individual faculties or even across departments depending on an individual field.

The third factor coming into play is the relation between publishing and financing. For almost one decade (2009 till 2017), a unique system of the transposition of research results into financing organisations was in place in Czechia called a “coffee grinder”. In a simplified way: types of results such as articles in journals, books, patents or utility models were assigned a certain number of points, and the overall number of points determined the financial allocation received by an individual institution. It is no wonder that at the end of this period, almost

every institution, every unit or even every individual (people very often get financial bonuses for the number of points they "earned" for the institution or the unit) was preoccupied by collecting points rather than thinking whether the research results were meaningful apart from bringing in money. The quantity of results clearly outweighed their quality. Even people from presumably top Czech institutions succumbed to the pressure and published their work in obscure or "predatory" journals. Although a new methodology to evaluate research outcomes has been introduced since 2017 in order to eliminate the most devastating elements of the previous exercise, one can still feel a tendency to publish as much as possible. Yet, articles in highly indexed journals are preferred.

What to do?

Although other features of researcher's work, such as knowledge and technology transfer or science communication (see the next chapters), have also been recognised as being useful and important, they still have not been regarded as a full-fledged part of the work of a researcher. Achievements in those areas, even with a large societal and system impact, still do not replace or even supplement research results, i.e., publications.

If you want to publish during you stay in Czechia, we advise you to discuss the publishing policy with your colleagues or with the unit at your institution responsible for science or research. Your supervisor or department head will get you in. You can get some useful advice about publishing your work at the National Library of Technology[12]. They can also provide you with basic information on open access policy.

National Library of Technology[12]

2.3 Why and how to protect your knowledge

There is no doubt that knowledge in various forms is the main outcome of research and development activities carried out in any research organisation. We can call such knowledge **know-how** in very general terms, or **intellectual property** (IP) more specifically.

Please bear in mind that there is a fundamental difference in the underlying principles in dealing with the knowledge between research organisations and industry (business). While the most important imperative

of science is to share the knowledge (usually by publishing or teaching), the industry tends to protect its know-how as much as possible.

Although the dissemination of knowledge mainly through publishing remains the most important mission of research organisations in Czechia, we have witnessed an increasing tendency during the last decade to pay more attention to IP protection. It is particularly important in projects of applied research where patents and utility models are listed among applicable project outcomes. Second, the IP should be very carefully analysed and protected if there is any potential for the further commercialisation of any kind.

Copyright law and industrial law

In a rather simplifying way, intellectual property can be protected along two lines; either by **copyright law** or by **industrial law**. Although there has been a decent level of global or EU standardisation in both areas, both categories are still exclusively regulated by national legislation which can vary state by state. The main distinction is that copyright protects your work automatically, whereas industrial law is based on the registration principle – it is not protected until registered by a corresponding patent office.

Please note that industrial law protects ideas or solutions. Copyright law protects the way the work is expressed; it does not protect the ideas that are contained in the work. If you publish some original and innovative technical principles in a scientific article, the copyright law makes sure that nobody copies your work without your consent or without properly citing it. However, it does not prevent anybody from using your ideas and making a profitable business out of them.

Another important principle is that your intellectual property is protected by national legislation within national borders. Especially in the case of industrial-legal protection, you must decide (and adequately pay) on the geographical area in which your IP will be protected.

Who owns the knowledge?

According to Czech legislation, the outcomes of research activities that are carried out in line with a working contract belong to the employer; the employee still remains the author of the work or the originator of the invention. Detailed conditions under which the IP can be used either by the employer or the employee are prescribed by the law.

Works protected by copyright law (publications, pictures as well as software) usually do not cause major problems, although you should know that publishing policies can differ across institutions. Some organisations regulate and coordinate publishing and basically exercise rights to copyrighted works; in others the decision what and where to publish and corresponding steps are left up to the individual researchers.

More attention is usually paid to research results falling within industrial law. There is usually an internal regulation describing concrete steps an individual researcher is obliged to take should any of his or her research results be subject to industrial protection. In any case, such a result should be reported to the employer without any further delay.

Publish or protect?

Researchers often think that when it comes to intellectual property they have to decide between either publishing or protecting their research results. This is not true! If you have really some significant and original idea, material or technology in your pocket, you should first **consult your technology transfer officer** about the following steps. The early disclosure of your original principle or substance during a scientific conference (even orally) or by publishing it in any journal or publicly available document can indeed jeopardise further industrial protection. If you need to publish something really original worth protecting, protect first and publish later.

Whether and how you or the institution you work for will protect the IP depends basically on two factors. First, one chooses a proper tool for protection based on the essence of his or her idea. The most efficient way might differ

in the case of a new product, substance, technology, method, design, slogan or software. Second, intentions and future plans of an originator and the institution should be taken into account. The steps could vary if the originators want to use the IP for commercial purpose themselves, establish a spin-off company, sell the IP or grant a license.

Register your IP or keep it secret

You should also note that there are basically two ways to protect your original ideas. Both has their advantages and disadvantages. An easier and less formal way is to keep your intellectual property **secret**. Such a practice is usually used with recipes or with substances which are difficult to identify. It is also rather common in fields where new methods or products are produced so quickly that there is little or no reason to wait for industrial-legal protection to be granted. Such a way of protection is almost exclusively used in private business and industry.

Intellectual property which is not generally known or readily ascertainable by others is called a **trade secret** or in some jurisdictions it is referred to as **confidential information**. It has inherent economic value, and the owner should make reasonable effort to maintain its secrecy. However, you should remember that keeping your ideas secret does not prevent others from reaching the same result through their own activities. At the same time, this way of protection is in line with publication principles in academia or science in general. Yet, it is good for you to know that such a tool also exists.

A second, more traditional way, is to use available industrial-legal protection instruments. The most common include patents, utility models or industrial designs. If you are interested in industrial protection, you can find more information at the website of the Industrial Property Office of the Czech Republic[13] or the European Patent Office[14].

Industrial Property Office[13]

European Patent Office[14]

2.4 Knowledge valorisation: How to use your knowledge

During the last decade in Czechia, significant attention has been paid to the third role of universities (besides teaching and research activities), collaboration between research organisations and industry in general, and more specifically to the transfer of technology and knowledge.

Once again, terminology is worth mentioning. When talking about the collaboration (or cooperation) of research organisations with their environment, in Czechia we have been using the term **application sphere** rather than business or industry, in order to include other parts of the society that are not strictly private business, but still can benefit from mutual interactions, such as regions, cities, hospitals or non-for profit organisations.

You should also keep in mind that people in humanities, social sciences or arts often do not feel very happy with the term **technology transfer** and prefer to use **knowledge transfer** instead. As a compromise, you might see the term technology and knowledge transfer. In English, knowledge valorisation has been recently used for example by the European Commission[15] , yet in the Czech language this term has not been internalised and accepted by the research and academic community.

Valorisation Channels and Tools[15]

Technology and knowledge transfer

There is usually a unit or at least a person responsible for cooperation with business or technology and knowledge transfer in a research organisation. The usual name of such a unit is the TTO – technology transfer office (CTT – Centrum transferu technologií), but you can find different variations. Some research organisations (institutes of the Academy of Sciences as well as universities) opted for establishing a more independent entity to undertake their transfer activities – known as a special purpose vehicle (SPV) – which are either private limited liability companies (Ltd., in Czech společnost s ručením omezeným or s.r.o.) or joint-stock companies (akciová společnost or a.s. in Czech).

Many units interested in knowledge and technology transfers are members of the TRANSFERA association[16], a unified functional platform protecting the interest of the Czech transfer community with an objective to advance and strengthen technology transfers. In addition to other activities, TRANSFERA maintains a database of promising research projects, and organises annual national conferences and technology days during which various projects aimed at commercialisation are presented.

TRANSFERA association[16]

What to do with your idea?

If you are interested in using the results of your research activities, you should contact the people in your research organisation responsible for technology transfers or commercialisation. At the Academy of Sciences, you can search for some help at your institute, or go to the central unit – Centre of Technology Transfer of the CAS[17] (CeTTAV). Most members of the knowledge and technology transfer community have already gained sufficient experience to help you.

Centre of Technology Transfer of the CAS[17]

They should also explain you your position vis-à-vis your employer. It might differ depending on your contract – whether it is a short-term or long-term one. It is also important to discuss how you have achieved your knowledge – it could be that you have been working on something already before and you are in Czechia just for a short period. Anyway, make sure that you get enough information about your rights and duties regarding using the results of your research for the purpose of its commercialisation.

Licensing and spin-offs

There are multiple ways research organisations commercialise their research results. Especially in engineering, research organisations conduct contract research or collaborative research. In most of these cases, the intellectual property (IP) related to the research is transferred to the recipient of the results. Many institutions also offer consultancy or training.

The two most traditional knowledge and technology transfer methods are **licensing** and **spin-off companies**. The use of licensing depends very often on the field – it is very common for example in chemistry, biochemistry, biology, and engineering. Licenses can be granted to patents, utility models, trademarks or copyrights. We distinguish between exclusive, non-exclusive and sole licenses.

We have witnessed an increasing number of spin-off companies related to the research results from Czech research organisations during the last decade. The term spin-off company is used in a broader meaning in the Czech context. The first case is that a research organisation itself establishes or at least owns some assets of the commercial company using the IP of a research organisation. Another case is that a researcher (alone or with other partners) owns the commercial company and the research organisation grants the license. Sometimes, we call a spin-off company a company which has at least some connection to a research organisation (a former employee, graduate of a university, etc.).

Support from the Central Bohemian Innovation Center

You can also benefit from the existing regional programmes and services in order to support academia-industry collaboration, and the transfer and commercialisation of research results, offered by the Central Bohemian Innovation Center (SIC), the coordinator of the MERIT programme. All these services are free of charge. For more details, please contact the MERIT Management Board.

- **Training in transferable skills** provided exclusively to MERIT fellows in the form of joint workshops, including topics such as commercialisation, spin-offs or the development of entrepreneurial and communication skills.
- **Business mentoring/coaching** provided exclusively to MERIT fellows who want to create their own business or commercialise their research results.
- **Transfer vouchers** as financial support for research organisations to move ideas or technology that originated in the academic sector on the TRL (technology readiness level) and CRL (customer readiness level) scale.

- **Validation of commercial potential** as a consultation service provided to the individual researchers to validate the market potential of their idea.
- **SIC Connect** is a personalised service to help researchers find suitable business partners for technology transfers and the commercialisation of their research results.
- **Mentoring for research organisations** provided to the managers of research organisations in strategic areas, commercialisation being one of them.

2.5 Science communication: Let the others know about you

Sir Mark Waport, a British Chief Scientist said in 2013: "*Science isn't finished until it's communicated. The communication to wider audiences is part of the job of being a scientist, and so how you communicate is absolutely vital.*" During the last decade, science communication has been increasingly discussed among the Czech science community. Although it has not reached a level such as, for example, in Great Britain, there has been a significant improvement, and many successful events and activities have already been established.

Events, activities and science learning centres

Every year there are several events taking place in Prague or simultaneously in other (mainly university) cities around Czechia. Since 2015, the Czech Academy of Sciences has been organising a Science Fair[18] in June in the PVA EXPO exhibition complex in Prague. It is usually followed by Vědafest – an outside event in Prague 6. Another interesting event is the Researchers' Night[19] which was initiated by the European Commission in 2005, and usually takes place in October. The week of the Czech Academy of Sciences[20], offering events all over Czechia, is organised in November. For almost 60 years now, Palacký University Olomouc has offered AFO (Academia Film Festival[21]), which features films, lectures, workshops and music surrounding science. In close cooperation with AFO, the Czech University of Life Sciences organises the Prague Science Film Fest presenting the best popular-science films, lectures and discussions. Apart from the above-mentioned activities, there are also many smaller events touching upon science communication such as Falling walls[22], Science cafés, conferences and workshops.

Science Fair[18]

Researchers Night[19]

Week of the Czech Academy of Sciences[20]

Academia Film Festival[21]

Falling walls[22]

Thanks to EU structural funds, several science learning centres have been built during the last decade. We strongly suggest visiting the Techmania Science Center in Pilsen, Dolní Vítkovice in Ostrava, VIDA! Science Center in Brno, Fort Science (Pevnost poznání) in Olomouc and IQLandia in Liberec. They also organise events targeted at the general public and mainly at children.

Media

If you want to reach out to the broader scientific community, you can contact the portal www.vedavyzkum.cz. The journal VESMÍR, though only in the Czech language, has been embracing topics around science, nature, humans and society since 1871 and can be another option if you want to inform the scientific community about your work in a less formal way.

General media (print or on-line) look for interesting stories and inspiring personal profiles. Foreign researchers and their careers and experiences in the Czech Republic or elsewhere fit into this picture. If you are interested in approaching the general public, we suggest Deník N[23] or Lidovky[24].

Deník N[23]

Lidovky[24]

We should not leave out television and radio stations. They also include news from science and higher education. Czech public television (Česká televize) operates a unit specialised on science. Their contributions are used across various broadcastings. Hydepark Civilizace is the most visible science-oriented series hosting top scientists and Nobel Prize laureates in prime time. Other TV stations worth mentioning are PRIMA NEWS and PRIMA ZOOM.

The public Czech Radio (Český rozhlas), especially its specialised broadcasting station PLUS, dedicates a significant portion of its programme to discoveries or scientific discussions. For example, Laboratoř by Martina Mašková brings together scientists and actors and actresses to discuss various topics. Czech Radio also has an English edition[25]. Another interesting radio station is the recently renamed RADIO PROSTOR.

English Edition[25]

The Czech Academy of Sciences and individual universities publish their own print or on-line magazines, both Czech and English editions. They seek interesting stories from visiting scholars and foreign employees. The Czech Academy of Sciences offers several print magazines targeted at either the general public or internal employees. Charles University has its own UK FORUM embracing on-line as well as print versions in both Czech and English.

Podcasts have also become increasingly popular within the Czech academic and scientific community. Find out whether your institution has one. Again, they are often done in English with English speaking guests.

Let's go out

Finally, we add a few suggestions if you want to communicate your research to the general public – either young generations or the large scientific community. There are multiple ways to so. First of all, talk to people at your institution responsible for public relations or marketing. They might know people in the media – it is a small world. Or talk to the MERIT Management Board members, who are more than willing to help you. Try to look for opportunities where you can write and talk English – the number has been slowly increasing. At the same time, try to find someone who is willing to guide you through the Czech environment: write articles with you in Czech, etc. Last but not least, do not stay only in your lab or your office. Go out, talk to people, do your networking, socialise and talk about your work.

European research area

3.1 Embracing open science and open access

Horizon Europe, the European Union's flagship research and innovation program, is underpinned by the principles of Open Science and Open Access. These principles foster transparency, collaboration, and free access to knowledge. Projects like MERIT, within Horizon Europe, share these ideals and as an MSCA fellow, you should remain aware of the most important principles of Open Science and Responsible Research and Innovation (RRI).

In this handbook, we will explore the significance of Open Science and Open Access in the context of Horizon Europe and the MERIT programme, the obligations of researchers involved, and the requirements that must be met to uphold these principles.

Open Science represents a shift in how research is conducted and disseminated. It champions transparency and collaboration in research, encouraging data sharing, method openness, and result accessibility. Open Access, on the other hand, focuses on providing unrestricted online access to scholarly publications and research outputs, making knowledge available to all, without financial or legal barriers.

These principles are central to Horizon Europe and therefore also to the MERIT programme as they aim to elevate research quality, innovation, and the societal impact of research.

Open Science and Open Access are instrumental in accomplishing the objectives of Horizon Europe and projects like MERIT:

- **Transparency:** Open Science ensures that all research stages are transparent, enhancing the quality and reliability of research through the verifiability of results and methodologies.
- **Collaboration:** These principles encourage researchers to collaborate, fostering an environment of shared knowledge and expertise.
- **Innovation:** Open Access allows for the rapid dissemination of research findings, accelerating innovation and societal impact.
- **Public Engagement:** Open Access facilitates public access to research, promoting engagement with the broader community.

As a researcher granted within the MERIT programme you are expected to adhere to the following obligations regarding Open Science and Open Access:

- **Open Access to research outputs** (such as publications, data, software, models, algorithms, and workflows): Researchers must ensure that their peer-reviewed scientific publications are made openly accessible immediately upon publication. This can be achieved by publishing in open-access journals or depositing in trusted repositories[1] (a general repository or a trusted discipline-specific repository). Don't forget to think carefully about the fees associated with open-access publishing and start planning for Open Science and Open Access from the project's inception. Develop a data management plan and explore suitable publishing options.

[1]**Trusted repository** is a secure location for storing and managing research data. It plays a crucial role in ensuring data preservation, accessibility, and compliance with open science principles. Trusted repositories store data securely, preserve it long-term, make it accessible to the research community, and comply with data management standards and legal regulations. Zenodo[2] and the European Data Portal[3] are good examples of trusted repositories.

Zenodo[2]

European Data Portal[3]

In MSCA projects, consider publishing your research results in **Gold Open Access** journals. Gold Open Access is a model of Open Access publishing in the realm of academic and scientific research. In this model, research articles and scholarly publications are made freely accessible to the public online, with no cost or access barriers. Key characteristics of Gold Open Access include **free access**, which means that readers can access research articles and publications without any cost or restrictions. This promotes the widest dissemination of knowledge. Gold Open Access publications often have **high visibility**, as they are available online from the moment of publication. This can lead to increased citation rates and impact for the research. Many Gold Open Access publications are accompanied by **open licenses** like Creative Commons, which specify how the content can be reused and shared. This allows for a more permissive approach to copyright and encourages collaboration and knowledge sharing.

This approach ensures immediate and free access for readers, fostering a wider dissemination of your work. While some Gold Open Access journals charge publication fees, these costs can be covered from the research costs that comprise part of your MSCA grant.

- **Data Management and Sharing:** Data generated in these projects should be open and accessible, ideally in a research data repository. Researchers need to develop data management plans addressing data format, storage, and sharing. Utilize research data repositories and platforms designed for sharing scientific data. Many institutions and organisations offer these services. Ensure your research data is available in open repositories. Data sharing is a fundamental aspect of Open Science, allowing others to verify your findings and build upon your work. The European Open Science Cloud (EOSC) offers support for data sharing in MSCA projects. For more information see Chapter 3.2.
- **Communication and Dissemination:** Researchers are expected to communicate their findings to the public and engage with stakeholders, promoting the societal impact of their work. Engage with the public and communicate your research in accessible, non-technical language. Consider creating lay summaries and participating in science outreach activities.

Open Science and Open Access are pivotal to Horizon Europe and the MERIT programme, reflecting a commitment to transparent, collaborative, and accessible research. Researchers involved in the project have a responsibility to uphold these principles. By doing so, they not only contribute to the program's success but also advance the global scientific community towards a more open and inclusive future. Embracing Open Science and Open Access in your MSCA project is not only a requirement but an opportunity to contribute to the advancement of scientific knowledge and societal progress. By understanding the different models of Open Access publishing, managing costs, and being prepared for potential challenges, you can successfully share your research results with the world.

As a MERIT fellow, you must ensure open access (free of charge online access for any user) to all peer-reviewed scientific publications relating to your results in line with Horizon Europe rules. Special attention will be paid to the copyright conditions set by the journals to ensure that the articles are published under open licence, such as the Creative Commons Attribution licence international version 4 (CC-BY 4.0) or a similar license, to allow commercial use of the results. The metadata of the deposited publication must be open under a Creative Commons 0 (CC0) license or equivalent, at the latest upon publication, in line with the FAIR principles[4] and provide information about the licensing terms.

More details on mandatory and recommended open science practices can be found in the Horizon Europe Programme Guide[5] and Annex 5[6] of the Model Grant Agreement.

Horizon Europe Programme Guide[5]

Annex5[6]

[4]**FAIR** is an acronym that stands for "Findability," "Accessibility," "Interoperability," and "Reusability." It represents a set of principles and guidelines for enhancing the management and sharing of research data and other digital assets. These principles aim to make data more valuable and impactful in the scientific community and beyond.

3.2 Data management plan

A Data Management Plan (DMP) is a comprehensive document outlining the strategies for collecting, documenting, storing, managing, and sharing research data throughout a project. It serves as a guide to ensure data quality, integrity, and accessibility. The DMP is established and regularly updated by all projects generating, re-using or processing data.

Key Components of a DMP:

- **Data Description:** Clearly define the types of data your project will generate, such as raw data, processed data, and supplementary materials.
- **Data Collection:** Explain how data will be collected, including methodologies, instruments, and data standards.
- **Data Documentation:** Describe how data will be labelled, organised, and documented, including metadata standards.
- **Data Storage:** Define where data will be stored during the project, considering security, backup procedures, and access controls.
- **Data Access and Sharing:** Detail how data will be made accessible to other researchers, including any restrictions or embargo periods. It is required to make all data under the principle 'as open as possible, as closed as necessary'.
- **Long-Term Preservation:** Describe how data will be preserved beyond the project's completion, specifying data repositories or archives.
- **Ethical and Legal Compliance:** Ensure your DMP aligns with ethical standards and legal requirements, including data protection and intellectual property rights.
- **Flexibility:** Be prepared to adapt your DMP as the project evolves, addressing unforeseen challenges or opportunities.

Documenting the DMP in the MERIT programme

In Horizon Europe projects, including the MERIT programme, the DMP is a mandatory document and researchers should use the Horizon Europe DMP template, available in Reference Documents[7] on the European Commission's official website.

Reference documents[7]

Data Management Plans are integral to responsible research in Horizon Europe and MSCA projects. They ensure data is handled transparently, promoting research quality, compliance with ethical standards, and data accessibility. Reporting on DMP is a crucial part of the periodic and final reports, demonstrating a commitment to ethical research standards and contributing to the program's goals.

As science and technology advance, the responsible management of research data through well-structured DMP becomes even more essential. Scientists, guided by their DMP, can contribute to the rigour, transparency, and societal benefits of their research, aligning with the spirit of Horizon Europe and MSCA.

3.3 Ethical issues

Ethics is an integral part of research from beginning to end, and this applies to all activities funded by the European Union. Ethical considerations in MSCA COFUND projects, like all Horizon Europe projects, are critical because they reflect the broader commitment to responsible and ethical research. Researchers involved in these projects should be aware of these ethical issues and take proactive steps to address them, such as obtaining ethical approvals, ensuring transparency in research practices, and complying with legal and ethical standards.

MSCA COFUND projects emphasize the importance of training and career development for researchers, and ethical conduct is a fundamental aspect of professional development. Compliance with ethical guidelines is typically monitored through periodic reporting, ethical reviews, and audits to ensure that research is conducted with integrity and responsibility.

Ethical issues in research projects can encompass a wide range of topics. Ethics issues checked in Horizon Europe are **Human embryonic stem cells (hESCs) and human embryos, Human beings, Human cells or tissues, Personal data (GDPR), Animals, Non-EU Countries, Environment, Health & Safety, Artificial intelligence (AI), Other issues (which opens ethics to any possible research areas).**

Addressing ethical issues in Horizon Europe projects, including MSCA COFUND projects, is not only a requirement but also an opportunity to demonstrate a commitment to ethical conduct and the responsible pursuit of knowledge for the betterment of society. MSCA COFUND projects are a little bit specific, because at the proposal stage the type of research projects to be funded, and thus what ethics issues might arise from them, are not known. Therefore, the reporting on ethics is after each call and there is an ethics procedure and ethics committee, which is a committee formed by ethics experts in the different research areas who will perform the Ethics screening of the selected proposals. Before the beginning of any fellowship that has raised an ethical issue, the fellow must have obtained all approvals for implementing the task/s from any (national or local) ethics committee or other bodies such as data protection authorities.

In the case of any research that involves the use of **human embryonic stem cells (hESC) or human embryos (hE)**, the researcher must contact his/her supervisor as the beneficiary shall inform the Research Executive Agency (REA) in writing. Such research may not start without explicit approval in writing from the REA to the beneficiary, following approvals within the ethics review procedure and the approval of the relevant Programme Committee.

3.4 MERIT guidelines

Communication, dissemination, exploitation

As a MERIT fellow, you are expected to disseminate their research results in **at least 1-2 scientific high-level publications during the whole period of the fellowship** (depending on the field and duration of the fellowship) and in at least 2 professional events per year. You should take part in **at least 2 communication activities/events per year** in order to communicate your research projects to the general public.

Up to four years after the end of the MERIT Programme, the Host organisation that recruited you and you personally should use your best efforts to exploit the results generated within MERIT directly or to have them exploited indirectly by another entity, in particular through transfers or licensing. If, despite the best efforts, the results are not exploited within one year after the end of the MERIT Programme, the Coordinator of the programme will use the Horizon Results Platform to find interested parties to exploit the results.

Training

You can benefit from a **career development** programme composed of several workshops to develop your **soft** and **transferable skills**. You should participate in at least 4 training sessions of your choice, but Open Science/Open Access is compulsory for all MERIT scientists. The wide range of workshops is mainly oriented on innovation, commercialisation and technology transfer, reflecting the most current trends, such as citizen science, crowdfunding as one way to finance a research project, an emphasis on communication, entrepreneurial spirit and even co-creation. For more information, please consult the Guide for applicants or contact the MERIT Management Board.

Visibility rules

As part of Horizon Europe, your communication and dissemination related to the MERIT programme (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.) must acknowledge EU support and display the European flag (emblem) and funding statement Co-funded by the European Union. Moreover, it must indicate the following disclaimer (translated into local languages where appropriate):

"Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Central Bohemian Region. Neither the European Union nor the Central Bohemian Region can be held responsible for them."

Apart from the EU emblem, you should use the logos of MERIT, the Central Bohemian Innovation Center and the Central Bohemian Region. All the logos and the manual how to use them will be provided to you by the MERIT Management Board.

Together with your supervisor, you are required to submit a **progress report every 6 months** to the MERIT Management Board. Such a report must combine the progress and the final results of the reviewed Career Development Plan (including the Dissemination and Communication Plan) and the corresponding DMP[8] , if applicable.

DMP online tool[8]

It is also necessary to report any ethical issue if you stated in the project application that your project solves any of the ethical issues. As part of Horizon Europe, particularly an MSCA scheme, you must document ethical considerations and actions taken to address them. Such reports are a **condition of the continuation of funding**. The format of the report will be provided to you by the MERIT Management Board.

The Steering Committee of the MERIT programme will evaluate the progress reports to date in accordance with the deliverables outlined in the original proposal and provide feedback to you or your supervisor indicating either whether the report is satisfactory in all respects and continuation of your fellowship is confirmed, or the report is deficient in some areas and specific actions are indicated within a defined time period.

Useful documents and links:

MERIT programme official website.

European Commission. (2021). Horizon Europe Model Grant Agreement – Multi-beneficiary.

Horizon Europe (HORIZON) Model Grant Agreement.

European Commission. (2021). Open Science in Horizon Europe.

Marie Skłodowska Curie actions guidelines on supervision.

Employment and Hosting of Foreigners in a Czech Academic Environment.

Information note for Marie Skłodowska-Curie Fellows in a Co-funding of regional, national and international programme (COFUND).

Information package for Marie Skłodowska-Curie fellows.

MERIT research areas

Biotechnology
& Biomedicine

Space
technologies

Digitisation
& AI

Laser
technologies

Sustainable
energy
and Materials

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