Risk management in international scientific cooperation – points to consider

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Background

Only international research is viable in the long term. The Leibniz Association's institutes are firmly rooted in global cutting-edge research, and Leibniz researchers are constantly developing and expanding international partnerships. However, as well as offering opportunities, cross-border collaboration also entails some risks – such as the uncontrolled loss of intellectual property and unintentional technology transfer. The Leibniz Commission for Research Ethics has established that "Scientific freedom is a fundamental right enshrined in the constitution. It forms the basis of the Leibniz institutions' success and is a guarantor of progress in society. In view of the tensions that can exist between the opportunities presented by scientific freedom and the risks of research results being misused, research always needs an ethically responsible balancing of competing interests and values."

In order to minimise the risks of misappropriation or improper use of research output, especially on the part of the cooperation partner, it is advisable to develop and establish internal processes within the institutes that can be used to carry out standard, pragmatic and unbureaucratic assessments of collaborations with individual partners or countries on a case-by-case basis. In this context, cooperation is understood in a broad sense as any form of international collaboration, with no restriction, for instance, in terms of the degree of collaboration or the countries involved. The following points are intended to facilitate the implementation of such measures and to raise awareness of the issues generally among Leibniz Institutes.

1. Risks and benefits of a cooperation project

- **Initial risk assessment**
  In research, risks relate especially – but not exclusively – to violations of export control law and of ethical principles of research, and improper or unagreed unilateral commercial exploitation of research results and technologies. Before taking on an international collaboration project, institutes should therefore take steps to identify, document and, where possible, minimise project- and country-specific research risks. The initial risk assessment should include generally

available background information,[1] and should also consider experiences in professional circles regarding relevant legal, economic, (science) policy and sociocultural conditions in the partner country and options for minimising risks.

- **Cost-benefit analysis**
  This kind of general initial risk assessment can be used as a basis to assess and weigh up the added value and benefits of a project against potential cooperation risks and the work that the institute and its staff will have to invest to minimise the risks.

2. Due Diligence

- **Political context of the research partner**
  Before taking on a collaborative project, institutions and researchers should find out about the political situation in the partner country and the associated motivations and dependencies of the research partner. Potential partner institutions and individuals should be assessed within the institute using available tools[2] and contacts.[3]
- **Grants and economic transfer situation of the research partner**
  In particular, there should be transparency and mutual agreement on the general conditions of project funding and the economic transfer situation of the research partner, including clarifying whether its interest in collaboration is of a (purely) scientific nature, or whether there are other exploitation or transfer plans. A reliable funding concept also involves defining each partner's share of the project funding and avoiding long-term financial dependencies.

3. Regulatory framework

- **EU and German export control law**
  When collaborating with non-EU partners, European and German export control law must be complied with. This legislation relates in particular to the non-proliferation of critical technologies, i.e. technology that has the potential to be used for military purposes. In some cases, country-specific embargo legislation may need to be observed, along with sanction lists for specific individuals and organisations, Germany's War Weapons Control Act, Foreign Trade and Payments Act or Foreign Trade and Payments Ordinance and/or the EU *Dual-Use* Regulation. Items listed here in the goods (e.g. prototypes, material samples), technology and

[1] See list of useful links in the appendix.
[2] e.g. the ASPI tracker or financial sanctions list, see list of useful links in the appendix.
[3] e.g. the Ministry of Foreign Affairs.

software (e.g. data carriers) categories, require authorisation before they can be exported from the EU.[4]

A more difficult task is to go beyond the legislation and assess items/elements and their possible uses that are not covered by the regulations and lists of items.[5] For a prudent assessment of individual cases, it is worth consulting the Federal Office for Economic Affairs and Export Control (BAFA) and other competent authorities. Sharing experience with peers can also be helpful.

The export control legislation also applies when hosting visiting researchers or recruiting experts from a non-EU country, especially if *dual-use* knowledge might be imparted to them. Violations of export control legislation can result in serious consequences for the institute leaders and individual employees in terms of criminal prosecution and fines.

- **Applicable law in the partner country**
  In order to avoid violating (including unintentionally) the applicable law in the partner country, e.g. through knowledge, technology or data transfer, researchers should be informed of relevant, country-specific laws and their sometimes extraterritorial impacts, and consult experts in this area. Violations (including those committed unknowingly) can result in personal liability and damage to an institution's reputation.[6]

4. Partnership structure

- **Safeguarding good scientific practice**
  Particularly in international collaborative projects, it must be made clear (including in writing) that compliance with academic freedom, internationally recognised publication practice and defined scientific and ethical standards is mandatory. The guidelines on safeguarding good research practice that have been recognised and adopted by the German scientific community[7] also apply to international

[4] This list does not specifically mention basic legislation that should be considered as a matter of course, such as the Basic Law of the Federal Republic of Germany, the European Convention on Human Rights, the EU Charter of Fundamental Rights and the Universal Declaration of Human Rights, German criminal law, budget law, and legislation regulating public grants and intellectual property rights. Depending on the specialist area and case, regulations based on the Nagoya Protocol concerning access to genetic resources and their fair use, and animal protection legislation in Germany and the partner country may also be relevant.

[5] In the past, attempts have actually been made to use collaborative projects dedicated to the development of supposedly harmless technologies, e.g. in the area of archaeological ground detection or maritime environmental research, for military purposes.

[6] e.g. Chinese data protection laws and US export control laws.

[7] DFG (2019); see list of useful links in the appendix.

collaborative projects.[8] In addition, every Leibniz institute should have a discussion process and, building on this, its own *standard operating procedure* for dealing with risks. Relevant risks include in particular: censorship and self-censorship, active and passive forms of corruption and the acceptance of benefits, financial and non-financial, current or future dependencies of international funding bodies and research partners, or a potential risk or threat to, or constraints on participating specialists abroad.

- **Contractual agreements**
  Other mandatory elements of cooperation agreements with international partners are terms governing confidentiality, property rights, licences and transfers, the registration of property rights, warranties, liability, applicable law and place of jurisdiction. For instance, the use of research infrastructure and collected data should be regulated in advance so as to afford the cooperation partners equal access and prevent one party from taking advantage.

- **Protection of intellectual property, IT and information security and data protection**
  The risk of failing to consider employees' privileged interests and data cannot be ruled out in any research project. Before a collaborative project starts, suitable rules and precautions must therefore be put in place, put in writing and communicated to everyone involved in the project. Since scientists are not always aware of the fact that their research could involve knowledge that should be protected, they should be made aware of this. The cooperation agreement should also set out clear rules of procedure and specify persons responsible, sanctions and an exit clause in the event of a violation of the terms.

  In order to protect intellectual property and valuable know-how, and prevent their uncontrolled loss, institutions should take suitable measures to restrict admission and data access, in addition to including relevant stipulations in the cooperation agreement. For instance, data must be categorised following the *need-to-know* principle and used, stored and encrypted accordingly.[9] Data minimisation and early anonymisation of data are also simple, practical ways of ensuring data protection. An internal security concept usually governs the institute's provisions for IT and information security, protection of intellectual property and compliance with data protection, and names the persons responsible for compliance and monitoring.

- **Criteria for exit situations, exit clause and emergency plan**
  Equally, before the project starts, clear internal responsibilities and roles should be defined that set out clear decision-making options and possible courses of action in the event of difficulties and emergencies, but also in the event of (unilateral) unreasonable and unresolvable situations. These include scenarios and criteria that would trigger a review of, a change to, or even the abortion of a collaborative

[8] The Leibniz Commission for Research Ethics can be consulted to assess ethical or security-related issues whenever a partnership has relevance beyond the individual case in question in a key Leibniz Association field of research.

[9] The General Data Protection Regulation and the German Data Protection Act also apply to the transfer of personal data to a non-EU country.

project. These terms should also be contractually agreed in the form of an exit clause.

5. References to guides and recommendations

- **Risk assessment guidelines, guiding questions and checklists**
  There are a number of guides, guiding questions and checklists, of varying levels of detail and orientation, that can be used for internal assessments and risk minimisation in relation to international cooperation.[10] Depending on the field and the partner country, Leibniz institute leadership teams should adopt these, share them with their colleagues and make use of them, e.g. in their own risk-appropriate, science-relevant audit procedure, as part of the institute's internal compliance mechanism.
- **Raising awareness and training**
  As a matter of principle, researchers and research administrators should be made aware of country- and field-specific risks and risk management in research cooperation and given ongoing training in this area. Training can include institute-specific training sessions, activities organised by Leibniz Headquarters (such as the China Days and specialist workshops) and by external authorities, such as the KIWi centre of the German Academic Exchange Service (DAAD).
- **Contacts and networking options**
  There are a number of bodies that Leibniz institutions can contact for advice, besides Leibniz Headquarters.[11] These organisations also offer networking opportunities for experts to share experiences.

[10] See list of useful links in the appendix.
[11] See list of useful links in the appendix.

Useful links for further information and guides

Overviews and sources of information

German Aerospace Center (DLR) (n.d.): International Bureau. www.internationales-buero.de/en.

German Aerospace Center (DLR) (2021): Kooperation international. www.kooperation-international.de/en.

Federal and State Justice Portal (2020): Financial sanctions list (in German). https://justiz.de/onlinedienste/finanz_sanktionsliste/index.php.

Transparency International (2021): Corruption Perceptions Index. www.transparency.org/en/cpi/2020/index/nzl.

Compliance systems and export control law

Federal Office for Economic Affairs and Export Control (BAFA) (2019): Export Control in Science & Research. Available online at: www.bafa.de/SharedDocs/Downloads/EN/Foreign_Trade/ec_awareness_academia.html.

Federal Office for Economic Affairs and Export Control (BAFA) (2019): Export Control and Academia Manual. Available online at: www.bafa.de/SharedDocs/Downloads/EN/Foreign_Trade/ec_academia.html.

Federal Ministry of Education and Research (BMBF) (n.d.): Supercomputers and export controls – guidance for international scientific collaborations (in German). Bonn. Available online at: https://doku.lrz.de/download/attachments/31065746/Supercomputer_und_Exportkontrolle.pdf?version=1&modificationDate=1616504942717&api=v2.

German Research Foundation (DFG) and the German National Academy of Sciences Leopoldina (2014): Scientific Freedom and Scientific Responsibility – Recommendations for Handling Security-Relevant Research. Available online at: www.leopoldina.org/uploads/tx_leopublication/2014_06_DFG-Leopoldina_Scientific_Freedom_Responsibility_EN.pdf.

EU Commission (2020): EU compliance guidance for research involving dual-use items. Available online at: https://trade.ec.europa.eu/consultations/documents/consul_183.pdf.

Max Planck Institute for Foreign and International Criminal Law and Fraunhofer Institute for Systems and Innovation Research (ISI) (2020): Risks for Germany as a research location. Guide to dealing with scientific espionage and competitor espionage in an academic context (in German). Available online at: https://wiskos.de/files/pdf4/Wissenschaftsorganisation_Leitfaden1.pdf.

Data protection and intellectual property rights

Centre for the Protection of National Infrastructure (n.d.): Trusted Research. Guidance for Academics. Available online at: www.cpni.gov.uk/system/files/Trusted%20Research%20Guidance%20for%20Academia_0.pdf.

European Commission (2021): Commission Staff Working Document. Report on the Protection and Enforcement of Intellectual Property Rights in Third Countries. Brussels. Available online at: https://trade.ec.europa.eu/doclib/docs/2021/april/tradoc_159553.pdf.

Act to adapt data protection law to Regulation (EU) 2016/679 and to implement Directive (EU) 2016/680 (*Datenschutz-Anpassungs- und -Umsetzungs-gesetz EU – DSAnpUG-EU*) (in German).

Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

Further guidance

German Research Foundation (DFG) (2019): Guidelines for Safeguarding Good Research Practice. Code of Conduct. Available online at: www.dfg.de/download/pdf/foerderung/rechtliche_rahmenbedingungen/gute_wissenschaftliche_praxis/kodex_gwp_en.pdf.

German Academic Exchange Service (2020): KIWi Kompass: No red lines. Academic collaborations in a complex environment. Criteria – Guidelines – Sources (in German). Available online at: https://static.daad.de/media/daad_de/pdfs_nicht_barrierefrei/infos-services-fuer-hochschulen/kompetenzzentrum/dokumente/daad_kiwi_kompass_keinerotenlinien_2020.pdf.

Global Public Policy Institute (GPPi) (2020): Risky Business: Rethinking Research Cooperation and Exchange with Non-Democracies. Strategies for Foundations, Universities, Civil Society Organizations, and Think Tanks. Available online at: www.gppi.net/media/GPPi_Baykal_Benner_2020_Risky_Business_final.pdf.

Leibniz Centre for Tropical Marine Research (ZMT): Bremen Criteria. Available online at: https://www.leibniz-zmt.de/images/content/pdf/OKE_Office_Knowledge_Exchange/ZMT_Bremen_Criteria_2015.pdf.

Guides that focus on China

D'Hooghe, Ingrid and Lammertink, Jonas (2020): Towards Sustainable Europe-China Collaboration in Higher Education in Research. LeidenAsiaCentre (ed). Available online at:

https://leidenasiacentre.nl/wp-content/uploads/2020/10/Towards-Sustainable-Europe-China-Collaboration-in-Higher-Education-and-Research.pdf.

Joske, Alex (2018): Picking flowers, making honey. The Chinese military's collaboration with foreign universities. Australian Strategic Policy Institute (ASPI) (ed.). Policy Brief Report, No. 10/2018. Available online at: https://s3-ap-southeast-2.amazonaws.com/ad-aspi/2018-10/Picking%20flowers%2C%20making%20honey_0.pdf?VersionId=H5sGNaWXqMgTG_2F2yZTQwDw6OyNfH.u.

The Australian Strategic Policy Institute (2019): The China Defence Universities Tracker. https://unitracker.aspi.org.au/.