FIZ Karlsruhe

Leibniz-Institut für Informationsinfrastruktur

ADVANCING SCIENCE

OUR GUIDELINE GOOD SCIENTIFIC PRACTICE

CONTENT

PREAMBLE

FIZ Karlsruhe - Leibniz Institute for Information Infrastructure (hereinafter: FIZ Karlsruhe) has anchored integrity as a value in its mission statement. As a Leibniz Institute, we are a scientific institution. All employees contribute to the fulfilment of our mission as well as to the reputation and success of FIZ Karlsruhe, both those who work scientifically and those who support science. We see scientific integrity and good scientific practice as a responsibility of our institute as well as of all our employees. In the same way, we see it as our responsibility to actively communicate these rules and to protect ourselves as best we can against scientific misconduct at the level of the institute as well as at the individual level of the employees by bindingly applying and implementing suitable procedures and measures.

Therefore, this mandatory guideline is addressed to all employees. It is intended as an institute-specific specification of the "Leibniz Code of Good Scientific Practice" and the "Guideline for Good Scientific Practice in the Leibniz Association".

1 STANDARDS OF GOOD SCIENTIFIC PRACTICE

1.1 COMMITMENT TO THE GENERAL PRINCIPLES

The Leibniz Association and its member institutions lay down rules for good scientific practice, publicise them in their institutions and undertake to comply with them - taking into account the specifics of the institutional set-up and the relevant en subject area. Every employee of FIZ Karlsruhe is therefore responsible for ensuring that his or her own conduct complies with the standards of good scientific practice.

The fundamental principle of good scientific practice is to work *lege artis.* This includes maintaining strict honesty with regard to one's own and third parties' contributions, consistently doubting all results oneself, and allowing and encouraging critical discourse in the scientific community.

1.2 PROFESSIONAL ETHICS

The employees are responsible for implementing the fundamental values and standards of scientific work in their actions and for standing up for them. At FIZ Karlsruhe, teaching the basics of good scientific work is an integral part of scientific training from the earliest possible stage. In addition to the need-based supervision of doctoral students by the professorships, FIZ Karlsruhe also regularly offers events for young scientists, also in cooperation with KIT and other institutions. The staff regularly update their knowledge of the standards of good scientific practice and the state of research[1] .

Experienced scientists and junior scientists at FIZ Karlsruhe support each other in the continuous learning and training process and regularly exchange information on issues of good scientific practice.

[1] See, for example, the Borstel model at https://repository.publisso.de/resource/frl:6399232. Last accessed 30.09.2022

1.3 Organisational responsibility of the management

The management of FIZ Karlsruhe (management and divisional management) creates the framework conditions for scientific work. It is responsible for ensuring that good scientific practice is observed and communicated, and for providing appropriate career support for staff. The management creates the conditions for staff to comply with all legal and ethical standards. The framework conditions include clear and written procedures and principles of staff selection, career development and equal opportunities.

The management is responsible for an appropriate institutional organisational structure. This ensures that, depending on the size of the individual work units, the tasks of management, supervision, quality assurance and conflict resolution are clearly assigned and appropriately communicated to the respective staff.

Within the framework of personnel selection and development, FIZ Karlsruhe takes gender equality and diversity into account. The corresponding processes are transparent and avoid unwitting influences ("unconscious bias") as far as possible. For scientific staff, a cascade model was defined according to pay groups and management levels with target quotas, in accordance with the Leibniz Equality Standards and the research policy goals of the update of the Pact for Research and Innovation (PFI IV). With the "audit berufundfamilie" (work and family audit), the compatibility of work and family as well as the support of different lifestyles is sustainably anchored in the self-image of FIZ Karlsruhe. Suitable support structures and concepts are established for young scientists. Sincere counselling for careers and further career paths as well as further training and counselling opportunities are offered to all employees[2] .

1.4 Responsibility of the management of work units

The management of all working units within FIZ Karlsruhe bears responsibility for the entire unit. The interaction in working units is such that the group as a whole can fulfil its tasks, that the necessary cooperation and coordination take place and that all members are aware of their roles, rights and duties. The management task also includes, in particular, ensuring appropriate individual supervision of young researchers - embedded in the overall concept of the respective institution - as well as career development of staff. The annual staff appraisals offer the opportunity to discuss change and development perspectives and, if necessary, to make appropriate agreements. At the beginning of a doctorate, an agreement is concluded between supervisors and doctoral researchers in accordance with the applicable doctoral regulations, which regulates, among other things, the tasks and duties for both sides, accompanying qualification and compliance with the principles of good scientific practice. Abuse of power and exploitation of relationships of dependence are prevented by appropriate measures both at the level of the individual work units and at the level of the management of FIZ Karlsruhe. The Leibniz Association supports its institutions in this regard through appropriate joint agreements and offers[3] .

The size and organisation of the work units are designed in such a way that the management tasks, in particular the transfer of competencies, scientific support as well as supervisory and mentoring duties, can be carried out appropriately and responsibly. Employees of FIZ Karlsruhe enjoy a relationship of guidance

[2] See Guideline Career Development in the Leibniz Association at https://www.leibniz-gemeinschaft.de/karriereleitlinie Last accessed 30.09.2022

[3] See the guiding principles of our actions in the Leibniz Association at www.leibniz-gemeinschaft.de/leitsaetze-unseres-handelns and the Clearing House for Conflict Counselling and Prevention at www.leibniz-gemeinschaft.de/klaerungsstelle. Last accessed 30.09.2022

and personal responsibility appropriate to their career level. They are accorded adequate status with corresponding rights of participation. They are enabled to shape their careers through increasing independence.

Cross-departmental projects are coordinated cooperatively by the department heads involved. Maintaining good scientific practice remains in the hands of the project management in the respective division or, if no project management is planned, with the direct supervisor. In this way, staff members always have clearly designated persons responsible for questions of good scientific practice, even in cross-divisional projects.

1.5 Performance dimensions and evaluation criteria

A multidimensional approach is required to evaluate the performance of scientists and scholars in the Leibniz Association: The evaluation of performance basically follows qualitative, discipline-specific benchmarks. Quantitative indicators should be differentiated and reflected in the overall assessment. In addition to scientific performance, other aspects can be taken into account. FIZ Karlsruhe also takes this multidimensional approach into account in the programme budget, the annual reports and the Leibniz evaluation procedure[4] .

High-quality science is oriented towards discipline-specific criteria. In addition to the generation of knowledge and its critical reflection, other performance dimensions are also included in the assessment. These are, for example: a commitment to teaching, public relations and science communication, policy advice or knowledge and technology transfer; contributions in the interest of society as a whole can also be recognised. If voluntarily stated, individual characteristics in CVs - in addition to the categories of the General Equal Treatment Act - are also included in the judgement. Personal, family or health-related periods of absence or training or qualification periods extended as a result, alternative career paths or comparable circumstances are taken into account appropriately.

1.6 Ombudspersons

In accordance with the guideline on good scientific practice in the Leibniz Association, FIZ Karlsruhe provides for an independent ombudsperson to whom all employees and, if necessary, third parties can turn in matters of good scientific practice and in matters of suspected scientific misconduct. In the event of concerns about bias or the ombudsperson being prevented from attending, FIZ Karlsruhe provides for a substitute who must come from a different organisational unit than the ombudsperson. FIZ Karlsruhe takes sufficient care to ensure that the ombudsperson and his/her deputy are known at the institution.

The tasks of the ombudsperson are in particular:

- To be the point of contact for disagreements, suspicions, disputes and arbitrations in the context of good scientific practice,
- Advising employees on all matters of good scientific practice and mediating in conflicts related to good scientific practice,

[4] See principles of the evaluation procedure of the Senate of the Leibniz Association at www.leibniz-gemeinschaft.de/grundsaetze-evaluierungsverfahren. Last accessed 30.09.2022

- Actively communicating the rules of good scientific practice and helping to ensure that scientific integrity is a natural part of employees' work at FIZ Karlsruhe,
- Statements on cases of suspected scientific misconduct,
- Review allegations of academic misconduct in a formal procedure,
- Cooperation with the central Leibniz Ombudsman Board.

Suitable ombudspersons are academics who have the personal integrity, objective judgement and experience, e.g. in management positions, required to fulfil these tasks. However, they may not be a member of a central management body of FIZ Karlsruhe during the exercise of this office (passive right to vote). All employees of FIZ Karlsruhe are entitled to vote (active right to vote). Everything else is regulated by the election rules "Ombudspersons at FIZ Karlsruhe". The management ensures sufficient visibility, independence and support for the work of the ombudsperson. The ombudsperson and her deputy receive the necessary content-related support and acceptance from the management of FIZ Karlsruhe in the performance of their tasks. In order to increase the functionality of the ombudsman system, FIZ Karlsruhe provides for measures to relieve the ombudsperson in other ways. The interaction between the ombudsperson at FIZ Karlsruhe and the central Leibniz Ombudsman Board is governed by the Guidelines for Good Scientific Practice in the Leibniz Association. In addition, all employees have the option of contacting the supra-regionally active body "Ombudsman for Science"[5] .

If the ombudsperson can no longer be relied upon to fulfil his or her duties in the long term, or if there is no longer confidence in the ombudsperson's ability to fulfil his or her duties properly, the ombudsperson may be voted out of office. This is only possible if at least two thirds of the eligible voters agree. The ombudsperson must be heard before a decision is taken to remove him or her from office.

2 RESEARCH PROCESS

2.1 CROSS-PHASE QUALITY ASSURANCE

Scientifically active staff at FIZ Karlsruhe carry out every step in the research process in a lege artis manner. When scientific findings are made publicly available (in the narrower sense in the form of publications, but also in the broader sense via other communication channels), the applied quality assurance mechanisms are always outlined. This applies in particular when new methods are developed.

Continuous, research-related quality assurance refers in particular to compliance with subject-specific standards and established methods, to processes such as the collection, processing and analysis of research data, the selection and use of research software, its development and programming. FIZ Karlsruhe staff correct their data and findings if they notice discrepancies or errors after publication. If the discrepancies or errors give rise to the retraction of a publication, they shall work with the relevant publisher or infrastructure provider etc. as quickly as possible to ensure that the correction or retraction takes place and is marked accordingly. The same applies if employees are informed of such discrepancies or errors by third parties.
The origin of data, materials and software used in the research process is identified and the subsequent use is documented; the original sources are cited. The type and scope of research data generated in the

[5] see https://ombudsman-fuer-die-wissenschaft.de/ Last access 30.09.2022

research process are described. The handling of such data is designed in accordance with the requirements of the subject concerned. To this end, FIZ Karlsruhe has adopted a research data policy in addition to the present guideline with the aim of promoting the careful and open handling of research data and creating the best possible framework conditions for research data management. Self-developed source code of publicly accessible research software is made available in a persistent, citable and documented form (see also 2.7). The fact that results or findings can be replicated or confirmed by other researchers (for example, by means of a detailed description of materials and methods) is - depending on the subject area concerned - an essential component of quality assurance.

2.2 Actors, responsibilities and roles

The roles and responsibilities of the staff involved in a research project must be clear at all times during a research project.

The participants in a research project of FIZ Karlsruhe or with the participation of FIZ Karlsruhe engage in a regular exchange. They define their roles and responsibilities in an appropriate manner and adjust them as necessary. An adjustment is particularly indicated if the focus of the work of one of the participants in the research project changes.

2.3 Research design

Scientifically active staff at FIZ Karlsruhe take comprehensive and critical account of the current state of research when planning a project. The identification of relevant and suitable research questions requires careful research into research achievements that have already been made publicly accessible. FIZ Karlsruhe ensures the necessary framework conditions for this, e.g. by making relevant scientific publications accessible.

Methods to avoid (unconscious) bias in the interpretation of findings, for example critical selection of training data for machine learning, are applied as far as possible. FIZ Karlsruhe staff check whether and, if so, to what extent gender and diversity can be significant for the research project (with regard to the methods, the work programme, the goals, training data, etc.). When interpreting findings, the respective framework conditions are taken into account.

2.4 Legal and ethical framework, rights of use

Scientists at FIZ Karlsruhe handle the constitutionally granted freedom of research responsibly. They take into account rights and obligations, especially those resulting from legal requirements but also from contracts with third parties, and obtain and submit approvals and ethics votes where necessary. With regard to research projects, a thorough assessment of the research consequences and the evaluation of the respective ethical aspects should be carried out. The legal framework of a research project also includes documented agreements on the rights of use of research data and research results arising from it.

Employees of FIZ Karlsruhe should continuously be aware of the dangers of misusing research results. Responsibility is not limited to compliance with legal requirements, but also includes the obligation to use knowledge, experience and skills in such a way that risks can be identified, assessed and evaluated. In

particular, the aspects associated with safety-relevant research ("dual use") are taken into account. FIZ Karlsruhe is responsible for ensuring that the actions of its employees conform to the rules and promotes this through suitable organisational structures. It considers the ethics of research to be an important topic and regularly raises awareness among its staff, for example by providing information on the intranet on how to deal with security-relevant research and on ethical principles. In cases of doubt, FIZ Karlsruhe turns to the Leibniz Commission on Research Ethics (Leibniz-KEF). FIZ Karlsruhe develops binding principles for research ethics and procedures for the corresponding assessment of research projects[6].

If possible and reasonable, employees of FIZ Karlsruhe shall enter into documented agreements on the rights of use at the earliest possible point in the research project. Documented agreements are particularly useful if several academic and/or non-academic institutions are involved in a research project or if it is foreseeable that researchers will change institutions and wish to continue using the data or findings they have generated for (their own) research purposes. Further use is governed by the legal regulations and the agreements of the participants in the respective research project as well as the Research Data and Open Access Policy of FIZ Karlsruhe. In the context of an ongoing research project, the authorised users also decide (in particular in accordance with data protection regulations) whether third parties should be granted access to the data.

2.5 Methods and standards

To answer research questions, FIZ Karlsruhe staff apply scientifically sound and comprehensible methods. When developing and applying new methods, they place particular emphasis on quality assurance and establishing standards.

As a rule, the application of a method requires specific competences, which can be covered through close cooperation. The establishment of standards for methods, the use of software, the collection of research data and the description of research results is an essential prerequisite for the comparability and transferability of research results.

2.6 Documentation

Employees of FIZ Karlsruhe document all information relevant to the achievement of a research result as comprehensibly as is necessary and appropriate in the subject area concerned in order to be able to verify and evaluate the result. In principle, they therefore also document individual results that do not support the research hypothesis. A selection of results must be avoided in this context. If concrete professional recommendations exist for the review and evaluation, the staff of FIZ Karlsruhe carry out the documentation in accordance with the respective requirements. If the documentation does not meet these requirements, the limitations and the reasons for them are explained in a comprehensible manner. Documentation and research results must not be manipulated and should be protected against manipulation as best as possible.

An important basis for enabling replication is to deposit the information necessary for understanding the research about research data used or emerging, the methodological, evaluation and analysis steps and, if

[6] See the Rules of Procedure of the Leibniz Commission on Research Ethics at https://www.leibniz-gemeinschaft.de/fileadmin/user_upload/Bilder_und_Downloads/%C3%9Cber_uns/Integrit%C3%A4t/Verfahrensordnung_Ethik_der_Forschung.pdf Last accessed 30.09.2022

applicable, the genesis of the hypothesis, to ensure the traceability of citations and, as far as possible, to allow third parties access to this information. In the development of research software, the source code shall be documented.
FIZ Karlsruhe employees provide complete and accurate evidence of their own and others' preliminary work. As part of its research data policy, FIZ Karlsruhe provides guidelines, recommendations and advice on the handling of research data throughout its entire data life cycle.

2.7 Establishing public access to research results

As a matter of principle, the staff of FIZ Karlsruhe contribute all research results to the scientific discourse. In line with its opening and networking strategy, FIZ Karlsruhe is committed to Open Science. Wherever possible, the staff publish their research results transparently and comprehensively in Open Access or as Open Source. With an Open Access policy and Open Access officers, as well as an information page on the intranet, extensive support for Open Access activities is available. In individual cases, however, there may be reasons not to make results publicly accessible (in the narrower sense in the form of publications, but also in the broader sense via other communication channels). This decision must not depend on third parties. Scientists decide on their own responsibility - taking into account the practices of the discipline concerned and ethical considerations - whether, how and where they make their results publicly available. Restrictions with regard to public accessibility may arise, for example, in the context of patent applications. If staff members make research software they have developed available to third parties, they provide it with an appropriate licence. In the case of publication, it follows the requirements of section 2.6 and the FIZ Karlsruhe Research Data Policy.

In keeping with the idea of "quality before quantity", inappropriately small publications are avoided. The repetition of the contents of publications as (co-)authors is limited to the extent necessary for an understanding of the context. Results that have already been made publicly available are cited, unless the discipline-specific self-image allows this to be dispensed with in exceptional cases.

2.8 Authorship

An author is anyone who has made a substantial and independent contribution to the content of a scientific text, data or software publication. All authors agree to the final version of the work to be published. They bear joint responsibility for the publication. Any deviations from this principle must be explicitly stated in the publication. Authors of the Leibniz Association shall ensure and, as far as possible, work towards ensuring that their research contributions are labelled by publishers or infrastructure providers in such a way that they can be correctly cited by users.
The contribution justifying authorship must be made to the scientific content of the publication. When a contribution is substantial, independent and comprehensible must be examined separately in each individual case and depends on the subject area concerned. As a rule, this is the case if a scientist has contributed in a scientifically relevant way to

- the development and conception of the research project or
- the development, collection, procurement, provision of the data, software, sources or
- the analysis/evaluation or interpretation of the data, sources and the conclusions drawn therefrom; or

- participated in the writing of the manuscript.

If a contribution is not sufficient to justify authorship, this support may be appropriately acknowledged in footnotes, in the preface or in an acknowledgement. Honorary authorship, where precisely no such contribution has been made, is not permissible in the Leibniz Association. A management or supervisory function does not in itself constitute a co-authorship. Employees of FIZ Karlsruhe agree - if necessary also with cooperation partners involved in the publication - on who is to be the author of the research results. Agreement on the order of authors is reached in good time, as a rule at the latest when the manuscript is being formulated, on the basis of comprehensible criteria taking into account the conventions of the respective subject area. Without sufficient reason, a required consent to publication of results may not be refused. The refusal of consent must be justified with a verifiable criticism of data, methods or results.

2.9 Publication organ

Authors at FIZ Karlsruhe carefully select the publication organ - taking into account its quality and visibility in the respective field of discourse. Employees of FIZ Karlsruhe who assume the function of editors carefully consider for which publication organs they assume this task. The scientific quality of a contribution does not depend on the publication organ in which it is made publicly available. If possible, publication organs that allow publication in Open Access are to be preferred.
In addition to publications in books and journals, specialist repositories, data and software repositories and blogs are also considered. New or unknown publication organs are checked at FIZ Karlsruhe for their seriousness. A key criterion in the selection decision is whether the publication body has established its own guidelines for good scientific practice. The contact persons named in the Open Access and Research Data Policy support staff in their search for a suitable publication organ.

2.10 Confidentiality and neutrality in assessments and consultations

Honest conduct is the basis of the legitimacy of a judgment process. Employees of FIZ Karlsruhe who, in particular, assess submitted manuscripts, funding applications or the expulsion of persons are obliged to maintain strict confidentiality in this regard. They shall disclose all facts that could give rise to concerns of bias. The obligation to maintain confidentiality and to disclose facts that may give rise to concerns of bias also applies to members of scientific advisory and decision-making bodies.
The confidentiality of third-party content to which the reviewer or committee member gains access precludes its disclosure to third parties and its own use. Employees of FIZ Karlsruhe shall immediately report any conflicts of interest or biases that could be justified with regard to the research project being reviewed or the person or subject of the consultation to the responsible office.

2.11 Archiving

FIZ Karlsruhe staff adequately safeguard research data and research results that have been made publicly accessible, as well as the central materials on which they are based and, if applicable, the research software used, in accordance with the standards of the subject area concerned, and store them for an appropriate period of time. If there are comprehensible reasons for not retaining certain data, they shall explain this.

When scientific findings are made publicly available, the underlying research data (raw data) - depending on the respective subject area - are usually kept accessible and traceable for a period of ten years at the institution where they originated or in multi-site repositories. In justified cases, shorter retention periods may be appropriate. The corresponding reasons must be explained in a comprehensible manner. The retention period begins with the date on which public access was established. FIZ Karlsruhe ensures that the necessary infrastructure is in place. Further details are set out in the Research Data Policy.

3 PROCEDURE FOR NON-COMPLIANCE WITH GOOD SCIENTIFIC PRACTICE

3.1 SCIENTIFIC MISCONDUCT

Employees at FIZ Karlsruhe understand scientific misconduct in the sense of the Guideline for Good Scientific Practice in the Leibniz Association (2019), whose definition FIZ Karlsruhe adopts:

1) Scientific misconduct includes false statements and misrepresentations in scientific contexts, in particular:
    a) the invention of data,
    b) falsifying data (for example, by selecting desirable or rejecting undesirable results or evaluation procedures without disclosing this, or by manipulating a representation or illustration),
    c) incorrect information in publication lists or a funding application (including incorrect information on the publication organ and on publications in print),
    d) Multiple publication of data or texts without a corresponding disclosure.
2) Scientific misconduct includes the infringement of intellectual property rights, in particular:
    a) with respect to a legally protected work created by others or essential scientific knowledge, hypotheses, doctrines or research approaches originating from others:
        - the unauthorised adoption or other use of passages without adequate proof of authorship (plagiarism),
        - the exploitation of research approaches and ideas without consent, especially as a reviewer,
        - the presumption or unfounded acceptance of scientific authorship or co-authorship as well as the denial of such,
        - the falsification of the content or
        - unauthorised publication and unauthorised making available to third parties as long as the work, finding, hypothesis, teaching or research approach has not yet been lawfully published;
    b) claiming authorship or co-authorship of another person without that person's consent.
3) Scientific misconduct includes unfairly interfering with the research activities of others - including damaging, destroying or tampering with equipment, records, hardware, software, or other property needed by others to conduct an experiment.
4) The removal of research data if it violates legal provisions or recognised principles of scientific work, as well as the unlawful non-removal of (especially personal) data, is considered scientific misconduct.

5) The neglect of scientific management responsibility and supervisory duty by working group or institute management in a manner conducive to breaches of good scientific practice is scientific misconduct.Co-authorship with the acceptance of participation in a falsified publication is scientific misconduct.

6) Deliberately faking the implementation or use of quality assurance measures and procedures (such as peer review) is scientific misconduct.

3.2 Principles of protection to be applied

The ombudsperson investigating a suspicion of scientific misconduct shall, in all procedural steps, appropriately advocate for the protection of both the person providing the information and the person affected by the allegations. The investigation of allegations of scientific misconduct shall be carried out expressly with due regard for confidentiality and the fundamental principle of the presumption of innocence. The whistleblower's report must be made in good faith. Deliberately false or wanton allegations may themselves constitute scientific misconduct. Neither the person making the report nor the person affected by the allegations should suffer any disadvantages for their own academic or professional advancement as a result of the report. This also applies to working conditions and possible contract extensions.

Advertisements should - especially in the case of junior researchers - not lead to delays during the qualification of the person providing the advertisement, and the preparation of theses and doctoral dissertations should not be disadvantaged.

The investigating body shall take into account the basic principle of the presumption of innocence vis-à-vis the person concerned at every stage of the proceedings within the framework of a case-by-case consideration. As a matter of principle, the person affected by the allegations should not suffer any disadvantages from the review of the suspicion until scientific misconduct has been formally established. The person providing the information must have objective evidence that standards of good scientific practice may have been violated.

If the person providing the information is unable to check the facts himself or if there is uncertainty about the interpretation of the applicable rules of good scientific practice with regard to an observed event, he should contact the responsible ombudsperson at FIZ Karlsruhe and, if necessary, the central ombudsman board of the Leibniz Association to clarify the suspicion. The basic competence of the "Ombudsman for Science" body remains unaffected.

A report made anonymously can only be examined in proceedings if the person making the report provides the body examining the suspicion with reliable and sufficiently concrete facts. If the person providing the information is known by name, the investigating body shall treat the name confidentially and shall not disclose it to third parties without appropriate consent. The only exception is if there is a legal obligation to do so or if the person affected by the allegations cannot otherwise defend himself or herself properly, because the identity of the person providing the information is exceptionally important for this. Before the name of the person providing the information is disclosed, he or she shall be informed immediately; the person providing the information may decide whether to withdraw the complaint if the name is likely to be disclosed.

The confidentiality of a procedure is restricted if the person making the report makes the suspicion public. The investigating body decides on a case-by-case basis how to deal with a breach of confidentiality by the whistleblower. Whistleblowers must also be protected in the case of unproven scientific misconduct, unless it can be proven that the allegations were made against one's better knowledge.

3.3 Procedure in suspected cases of scientific misconduct

FIZ Karlsruhe and the Leibniz Association have established procedures for dealing with allegations of scientific misconduct on the basis of sufficient legal foundations and the applicable Leibniz guideline on good scientific practice, which are set out in this guideline for the employees of FIZ Karlsruhe. The corresponding regulations include, in particular, definitions of facts of scientific misconduct, procedural rules and measures in the event that scientific misconduct is identified. The regulations are always applied in addition to relevant, higher-ranking standards.

Not every violation of rules of good scientific practice constitutes scientific misconduct. The nature and severity of possible violations are set out in detail in the present guideline (see 3.1). These regulations also clarify, above all, questions regarding the responsibility for each individual stage of the procedure, the assessment of evidence, the representation of the ombudsperson and the members of the investigative commission (see 3.3.2), bias and, if necessary, the principles of the rule of law. They are to be set up in such a way that persons affected by the allegations as well as persons providing information are given the opportunity to comment at every stage of the proceedings and that, until scientific misconduct is proven, the information about the participants in the proceedings and the findings to date are treated confidentially. FIZ Karlsruhe ensures that the entire procedure is conducted as promptly as possible and takes the necessary steps to complete each stage of the procedure within a reasonable period of time. If, following the discovery of academic misconduct, the withdrawal of an academic degree is considered as a measure, the bodies responsible for this will be involved. The result shall be communicated to the scientific organisations concerned and, where appropriate, to third parties with a justified interest in the decision after the investigations have been completed.

3.3.1 Preliminary examination

As a rule, procedurally relevant information on academic misconduct must be submitted to the ombudsperson in writing. In the case of an oral report of suspected misconduct, the ombudsperson must prepare a transcript. The ombudsperson conducts a preliminary investigation independently and without delay. The bias of the investigating ombudsperson can be asserted by the ombudsperson himself or herself as well as by the persons concerned. If there is disagreement about the allegation of bias, the chairperson of the scientific advisory board shall decide.

The ombudsperson is obliged to prevent disadvantages for the scientific and professional advancement of the whistleblower as far as possible, as well as to protect the accused from unjustified accusations. This obligation also applies to any persons and bodies who may be called in during further proceedings.

As part of the preliminary examination, the ombudsperson shall immediately request the accused person in writing to comment on the allegation. In doing so, he or she shall list the incriminating facts and evidence against the accused person. A deadline shall be set for the statement; as a rule, this shall be four weeks.

The time limit may be extended. The statement shall be made in writing or in text form. Accused persons are not obliged to incriminate themselves.

As part of the preliminary examination, the ombudsperson may request, procure and sift through documents, obtain and secure other evidence, obtain statements or - if necessary - external expert opinions. All persons involved must be requested to treat the enquiry confidentially.

The ombudsperson documents which steps have been taken to clarify the facts. After completing the relevant investigations and evaluating all relevant evidence, including the statement of the accused person, the ombudsperson decides without delay on the further progress of the proceedings. The decision is based on whether, based on the facts, a finding of scientific misconduct by the investigative commission appears more likely than a discontinuation of proceedings (sufficient suspicion). If there is no sufficient suspicion of prosecutable scientific misconduct, the ombudsperson will discontinue the proceedings. If there is sufficient suspicion, the ombudsperson will transfer the preliminary examination to a formal investigation, which will be conducted by the investigative committee. The decision shall be recorded in writing in a memo; the person providing the information and the accused as well as the management shall be informed of the decision and the decisive reasons.

3.3.2 Committee of Inquiry to Review Allegations of Scientific Misconduct

The Investigation Committee for the Review of Allegations of Scientific Misconduct is bound by this Policy and the definitions of scientific misconduct. It shall furthermore take into account the recognised professional standards and align its work with the usual principles of establishing the truth.

The management of FIZ Karlsruhe selects the members of the committee of enquiry in consultation with the ombudsperson. The committee of enquiry shall consist of at least three voting members, including

a) the Chairperson of the Scientific Advisory Board of FIZ Karlsruhe,

b) one further member who has the professional competence to comprehensively understand the scientific facts of the case and who is not an employee of FIZ Karlsruhe,

c) a fully qualified lawyer.

Other non-voting members are the ombudsperson, a member of the works council and a person appointed by mutual agreement between the committee and the person concerned to act as an advocate for the accused person, seeking exculpatory arguments and introducing them into the committee's discussion.

The bias of a nominated member may be asserted both by the nominated member himself or herself and by the persons concerned. If there is disagreement about the allegation of bias, the management shall decide. Should one of the three above-mentioned members be permanently prevented from participating in the committee of enquiry in the course of the proceedings, the management shall immediately appoint a successor in agreement with the ombudsperson.

The committee of enquiry deliberates in non-public and oral proceedings. At its first meeting, it agrees on rules of procedure. It appoints a chairperson from among its members, who is responsible for chairing the meetings. Decisions of the committee are taken by majority vote. The members of the investigating

committee and the employees involved in supporting the committee as well as all persons involved in the proceedings or informed about the proceedings are bound to confidentiality. The committee of enquiry hears the accused person as well as the person providing the information and establishes the context of the conduct complained of. The committee of enquiry may question further persons and obtain expert opinions or consult experts in an advisory capacity. As a rule, the review by the committee of enquiry shall be completed within a maximum period of six months from the constituent meeting of the committee of enquiry.

The committee of enquiry shall draw up a report in which it assesses the existence of scientific misconduct. If the committee of enquiry comes to the conclusion that scientific misconduct has occurred, i.e. if the majority of the committee of enquiry considers scientific misconduct to be sufficiently proven, the report shall in particular:

a) present and evaluate the extent of such scientific misconduct; and

b) determine and substantiate whether such conduct was negligent, grossly negligent or intentional.

The report may also state what further action or measures the committee of enquiry recommends. The report is submitted to the parties involved and the management of FIZ Karlsruhe. The management deals with the report in a timely manner and decides on further measures.

3.4 Conclusion of the procedure

The management of FIZ Karlsruhe decides on the basis of the report of the committee of enquiry on the existence of scientific misconduct on the necessary measures or on the termination of the proceedings. It may consult with the central Leibniz Ombudsman Board in this regard. Measures can be, depending on the severity of the proven scientific misconduct:

a) written reprimand, warning or further measures under labour law,
b) Request to withdraw incriminated publications or - in less serious cases - to correct false data by publishing an erratum,
c) Initiate academic, disciplinary, employment, civil or criminal proceedings.

If, on the basis of the report of the Board of Inquiry, the Executive Board determines that the academic misconduct may result in the withdrawal of academic degrees, it shall forward the matter to the awarding university.

The main reasons which led to the discontinuation of the procedure or to decisions on measures to be implemented shall be communicated to the person concerned, any persons providing information and the chairperson of the Scientific Advisory Board.

The management shall decide on the passing on and publication of the resolutions and the reports of the committee of enquiry on a case-by-case basis, taking into account the existence of a legitimate interest of third parties.

This guideline adapts the following papers for FIZ Karlsruhe and implements them in a binding manner:

- DFG Code of Conduct "Guidelines for Safeguarding Good Scientific Practice https://www.dfg.de/download/pdf/foerderung/rechtliche_rahmenbedingungen/gute_wissenschaftliche_praxis/kodex_gwp.pdf last access 30.09.2022
- Leibniz Code of Good Scientific Practice https://www.leibniz-gemeinschaft.de/fileadmin/user_upload/Bilder_und_Downloads/%C3%9Cber_uns/Gute_wissenschaftliche_Praxis/Leibniz-Kodex_gute_wissenschaftliche_Praxis.pdf last access 30.09.2022
- Leibniz Guideline on Good Scientific Practice https://www.leibniz-gemeinschaft.de/fileadmin/user_upload/Bilder_und_Downloads/%C3%9Cber_uns/Gute_wissenschaftliche_Praxis/Leitlinie_gute_wissenschaftliche_Praxis_2019.pdf last access 30.09.2022

This guideline also references policies of FIZ Karlsruhe, which supplement the regulations made here:

- Research Data Policy of FIZ Karlsruhe
- FIZ Karlsruhe Open Access Policy https://www.fiz-karlsruhe.de/sites/default/files/FIZ/Dokumente/oa-policy-de.pdf Last access 30.09.202

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