

ANNEX 1 GLOSSARY

Translated from Estonian by the Luisa Tölkebüroo

This glossary contains the explanations and definitions of terms related to research integrity.

Application means the use of research results for societal or commercial purposes. Application is not limited to the creation of ways of application. It also includes the testing and development of technologies, contributions to knowledge transfer, support of innovation, development of studies and research cooperation with entrepreneurs and other parties outside the field of research.

Benefits and harms mean any direct or indirect consequences of research which affect the parties related to the research. Beneficial effects could involve new or improved knowledge or useful applications that help to improve people's well-being, health, their living environment or their quality of life. Benefits may also be expressed on the societal level, supporting education, public health, social coherence, social well-being and development, economic and technological development, security and the protection of the environment, biodiversity or cultural heritage. Harmful effects violate people's rights and damage health, well-being, the environment, biodiversity, cultural heritage, Estonian society or humanity.

Not all benefits and harms can be foreseen, which is why their assessment must be critical and unbiased. This means that researchers should not overestimate positive effects or promise them to different parties without providing any evidence. Likewise, negative effects should not be underestimated or swept under the rug. When assessing benefits and harms, it is important to consider their probability, the extent of their influence and the parties affected. This is a prerequisite of proper prevention of research-related risks. This also means that researchers do not have to burden themselves with describing unlikely effects but focus on the consequences that they deem important, likely and foreseeable.

A conflict of interest is a situation where the reliability of a researcher or their work or decisions becomes questionable due to their personal and professional interests that are competing with one another. Depending on the decision or situation, the conflict may also be caused by long-term cooperation, family relations or prior supervisory work. Consequently, a conflict of interest is not essentially bad, but it should not be covered up or ignored. However, decisions that are not based on research interests, the use of research resources for private gain, the deliberate influencing of the objectivity of decisions, the deliberate damaging of competing researchers or research institutions and the favouring of persons who are close to you are clearly condemned.

In order to avoid damaging consequences, researchers are required to disclose their conflicts of interest or step down from decision-making positions. Disclosure does not eliminate a conflict of interest, but it helps other decision-makers or colleagues to assess the extent to which it may affect the reliability of decisions. It is necessary to acknowledge possible conflicts of interest, as these may entail a risk of corruption.

Data means any research data regardless of their contents, format, volume, level of

processing or analysis, research value or legal status.

Raw data are unprocessed data that the researcher first records in the process of data collection. If data are collected with the help of equipment or software, the preliminary data issued to the researcher by this equipment or software are regarded as raw data. In addition to data that have been processed to make them presentable and usable, the principles set forth in the Estonian Code of Conduct for Research Integrity with regard to data should also be applied to unprocessed raw data.

Metadata are data about research data. Metadata are needed to describe data and help to ensure their findability and usability. For instance, metadata can contain information on when and by whom the data were collected, when the database was last changed or restrictions on the use of the data.

Personal data are any data relating to a person who has been identified on the basis of these data or can be identified via further processing of the data. Data are not considered personal if they cannot be used in any way to identify the person to whom the data collected apply or if the identification process is unreasonably complicated. Additionally, there are personal data that are legally defined as **sensitive**, the processing of which is subject to stricter restrictions. More information can be found in the Personal Data Protection Act.

Dual use refers to the possibility of using research results for both social and military purposes. Dual-use research requires researchers to acknowledge this topic and, in the case of applied research and development, to assess the risks of dual use. These principles are derived from researchers' general obligation to ensure the security and safety of research. The export of dual use technology and goods is legally regulated in the European Union.

Duplicate publication, which is sometimes referred to as redundant publication, is when the content or the data used in a published text are identical to an earlier published text. There is no one specific way to assess redundancy or duplication. The justification of redundancy depends on the circumstances of each individual case, what is being repeated and to what extent and the reasons for it. The understanding of duplicate publication may also differ by publisher, research field and institution, which is why it is important for authors to provide full details of the circumstances of duplicate publication and provide correct references to prior publications.

Duplicate publication is an important question in publication ethics because the duplication of texts increases the growing volume of information, makes the finding of useful information more difficult, has the potential of amplifying the importance of repeatedly published research results and reduces other authors' chances to publish their text in the case of limited publication volumes. Duplicate publication can also be beneficial to researchers, whose number of publications will increase this way. Hiding duplicate publication from publishers and readers is also frowned upon.

Fabrication is the invention of research data or experiments and presenting them as truth.

Falsification means the amendment and biased or incomplete presentation of data as well as manipulation of equipment or research material. The aim of falsification can, for instance, be the presentation of data in a way that supports the hypothesis by knowingly ignoring the data that refute it.

An incidental finding is an unexpected discovery or new information about a person included in research, which is generally not related to the research objectives but is important in a certain way. For instance, it may have a strong effect on the person's health, well-being, private life or other benefits and rights. Incidental findings are, above all, important in the medical and social sciences where researchers may accidentally discover health problems, illnesses or the probability of their occurrence as well as sensitive private circumstances or cases of violence or offences. In such cases, it is important to pay attention to the person's willingness and consent with regard to dealing with incidental findings. The case is more complicated if an incidental finding affects more people than just the people included in the research.

Indigenous people are minority people living in the world who are distinguished from the native people of countries and regions. Even though the UN passed the Declaration on the Rights of Indigenous People in 2007, no single definition of indigenous people exists. Instead, the UN has pointed out a number of characteristics to serve as a basis for defining indigenous people. These include: self-identification as being distinct from the country's dominant population group and self-identification as a member of an indigenous people; historical continuity with an earlier, pre-colonial community; a strong link to one's territory and surrounding natural environment; a distinct language, culture and beliefs; formation of non-dominant groups of society; and maintenance and reproduction of ancestral living environments and systems. (The Concept of Indigenous People, 2004)

The topic of indigenous people is important in research ethics because their inclusion in research requires the acknowledgement of cultural differences, respecting them and their involvement. For instance, communities' understanding of property, agreements, rights and obligations may differ considerably from how researchers understand these concepts. This in turn complicates the process of obtaining indigenous people's consent to collect personal data or other research material or the fair use, distribution and compensation of benefits derived from **traditional knowledge**. When studying indigenous people, it is also important to proceed from their right of self-determination to decide on the research conducted about them.

Informed consent is a process that involves a person voluntarily agreeing to participate in research after they have been informed of and understood it. Informed consent is required for realising personal autonomy and this applies to both the physical freedom of self-determination and the processing of personal data. The informed consent form must include information, presented in a way that is understandable to the person, about the objectives of the study, funders, what happens with results, how and how long data are stored and who has access to the data collected from the person and what happens in the case of unexpected events, problems or incidental findings. The informed consent must also clearly state that

participation in the study is voluntary and the participant may withdraw their consent at any time. The person must also be informed of the possible consequences of the study and how fair compensation for damage is ensured.

Consent is always required when a researcher studies a person directly and collects personal data from them. The process of obtaining consent may differ in cases that involve analysis of secondary data or where research objectives would not be achievable if the person is informed. In exceptional cases where a person's consent is not asked, researchers must conduct their studies in accordance with the law, obtain the required approvals and ensure the taking of measures necessary to protect the rights of persons.

The exact content, format and time of informed consent depends on the research conducted, the method used and data collected. The notification should still include all of the above information even if data collection is anonymous or does not concern personal data.

Misconduct means, above all, any severe ethical violations in research, which include plagiarism, data fabrication and falsification. Misconduct has been defined in various ways in research and some broader definitions include other severe violations of research ethics and research integrity in addition to the above, for instance, the violation of the expression of will of the people included in research, cruelty towards test animals or falsification of permits required for research.

Misuse is the use of data, research results or applications in a way that is harmful to people and the environment.

Open access characterises research results, mainly articles, conference presentations and monographs whose contents are available for readers free of charge. Open access has different forms and in addition to free access, it may grant readers additional rights of use. Open access is based on the idea that knowledge should be free to distribute and use, which in turn allows them to be applied more extensively for the good of the society.

The topic of open access is linked to open access journals that publish research results that can be accessed free of charge yet may ask for a payment from the authors of the research publication for such access. When it comes to publication, open access has raised a number of questions with regard to the quality of journals and peer-review, copyright, use of research funding, research careers, the number of publications and free distribution of knowledge.

Open data refers to the approach or idea that access to research data should be free of charge in order to facilitate as extensive **re-use of data** as possible. For data to be open, they must be free of charge and not subject to any technical or legal restrictions to their use for personal or research purposes.

A person involved in research is a person from whom or with whom data are collected during research.

Plagiarism occurs when a researcher presents the thoughts, ideas or research results of another person without referring to their initial author. Plagiarism is, above all, focused on

referencing, which is why it also involves other questions related to proper referencing.

Publication means making research results or data available to the public in, for example, research journals, conference presentations, documentaries, speeches, monographs, textbooks and educational videos.

Research means, in the context of the Estonian Code of Conduct for Research Integrity, a study carried out using the scientific method and related activities. In addition to collection and analysis of data, research also covers other activities necessary for conducting a study, such as the selection of research topic and method, applying for resources, coordinating research, cooperation with colleagues, agreements with other parties and the publication and application of results.

Research conducted in developing countries may raise additional ethical questions that researchers should first consider. Prior to conducting research, researchers should consider the cultural and social characteristics of the local population, which may influence the process of obtaining consent and collecting data and research material from people. Another issue is the fair distribution of research benefits and expenses. For instance, clinical studies conducted in a developed country may contribute to the development of an important medicine, even though the country itself is not sufficiently wealthy to provide this medicine to its people. In such situations, researchers are responsible for figuring out how to compensate participants for their involvement in research, for instance, by offering them means to continue their treatment, training or improve their quality of life.

Research in developing countries and research involving **indigenous people** are thematically related because both require greater sensibility in relation to social and cultural differences, involvement of the local community, respect towards them and taking into account their possible opposition, contribution to the improvement of their quality of life and fair compensation for participation in research. However, the differences arise from the fact that indigenous people may live in both developed and developing countries and their special status must be taken into account in both cases.

A researcher is, in the context of research integrity, a person who conducts research independently or under supervision either alone or as part of a larger research group. Good research practice applies to everyone who engages in research regardless of their position, institutional belonging or employment relationship. Doctoral students, university students and persons who are engaged in research outside a research institution are also researchers. A researcher's level of responsibility with regard to following good research practice may differ to an extent depending on their position and experience. For instance, the head of a research group or a supervisor of doctoral students, who should serve as an example to their colleagues, are subject to a greater responsibility to follow good research practice. Students engaged in research, who are still studying and practising research, are subject to a somewhat smaller level of responsibility. However, this does not mean young researchers or students are completely exempt from responsibility due to their inexperience.

A research institution is, in the context of the Estonian Code of Conduct for Research

Integrity, an institution that is focused on research and employs the necessary researchers and which may additionally distribute research knowledge via teaching, publication or technology transfer. All of the positively evaluated research and development institutions in Estonia are research institutions.

The Estonian Code of Conduct for Research Integrity does not treat funding, regulatory and controlling institutions, publishers or other research-related parties as research institutions, which is why they are not subject to the principles of research institutions' responsibility set forth in practice. This does not mean that these institutions are not important to research or that they cannot follow the principles of research integrity in their work.

In certain cases, researchers may work in several research institutions, in Estonia and abroad, or in institutions whose main activity is not research. This, however, does not reduce researcher's responsibility to follow the principles of research integrity. If different institutions have different principles with regard to conducting research, stricter principles should be followed where possible.

Research integrity is a general and abstract concept, which refers to responsible conduct of research. In a narrower sense this refers to following rules and regulations, proper design of research and avoiding misconduct. In a broader sense research integrity refers to all the different aspects of responsible conduct, including public accountability and social responsibility, and covers all different areas of academic life. Integrity is ascribed to research in general or to individual researchers. Some aspects of research integrity are the responsibility of research institutions, for instance teaching, supervising, training, guidance, support, handling misconduct, reviewing, assessment and promoting environment that fosters integrity.¹

Re-use of data occurs when an author uses data that are collected and already published or analysed by them or someone else for new research. The prerequisites of re-use of data are free access to data and the right to use them for research and that the data are sufficiently described and processed in a way that allows them to be used for research. In order to be re-used, data must be managed correctly and their origin must be properly indicated.

A role conflict occurs when a researcher must simultaneously consider the conflicting requirements of their different roles. In addition to the role of a researcher, researchers have other roles related to their academic or personal life, such as the role of a supervisor, lecturer, manager, administrator, expert, science promoter, parent, spouse or member of a non-governmental organisation. In such situations, it is very difficult to say which role the researcher should prefer to others. In this case, it is important to fulfil each role as well as possible under the circumstances. Role conflicts have a tendency to develop into conflicts of interest, which is why they should always be addressed.

Secondary use of data is a special case of data re-use, where the data that researchers use for

¹ This definition is taken from Parder, M-L. ja Juurik, M. (2019) Deliverable 1.1 *Reporting on existing Codes and Guidelines* of the EC Horizon2020 project PROMoting ethics and integrity in non-medical RESearch; p 36.

their research are collected by someone else and could have been initially collected for a purpose other than research. For instance, the data may originate from national, public or private databases. In the case of secondary use of data, it is important to consider the initial data collection and its methodology in order to assess the reliability of secondary data and their usability for research purposes.

Vulnerable groups or vulnerable persons is a general term for persons and groups who are characterised by higher than average vulnerability. Vulnerability can be understood in two ways in the context of research. First, vulnerability characterises a person's inability or incapability to express their will freely, for instance, if they are forced to do so or if they are not capable of understanding the content of their expression of will. Secondly, vulnerability characterises susceptibility to damage, for instance, natural disasters, health risks or legal discrimination. The causes of susceptibility to damage are generally of a social and economic nature and are expressed in restricted access to education, healthcare or the labour market, which in turn limits the opportunities of these persons and groups to prevent or cope with damage.

There is no single specific list of vulnerable groups, but these generally include minorities, the poor and any politically oppressed groups that are marginalised in society. Depending on the situation, people with restricted ability to act or decide may include children, seniors and people with chronic illnesses or disabilities.

In the context of research, researchers are required to consider the vulnerability of people included in research when assessing damage and benefits as well as when obtaining their consent for participation in research. The significance of assessing vulnerability may vary depending on the research. In the case of human research, it is always important to consider the vulnerability of persons in the context of research design and when obtaining informed consent and to assess to what extent the consent is voluntary and to what extent it is influenced by other persons, limited knowledge or opportunities. The topic of vulnerability is also important in developing countries and in the case of research conducted with traditional communities, where problems that arise from poverty and possible discrimination must be considered.

Traditional knowledge (indigenous knowledge) is a folkloric collection of knowledge, skills and practices characteristic to indigenous people, which might be unique in the global context and therefore valuable research material. Depending on the situation, traditional knowledge can also be material and intellectual heritage, language, life organisation or the beliefs of indigenous people. Traditional knowledge is an important topic of research ethics because it is not protected under intellectual property rights, even though the results of research and development work based on it can be valuable and legally protected. Consequently, researchers are responsible for ensuring that indigenous people are fairly compensated for the use of their traditional knowledge for research, commercial or other purposes. Researchers must also ensure that the interests of indigenous people are not damaged in the course of the collection of traditional knowledge and its further use and that they retain the right to use such knowledge.