General policy plan on research data management at Hasselt University

Introduction

The sound management of research data is essential to high-quality and responsible scholarly research. Hasselt University sees to the quality of the research performed within the institution and by researchers affiliated to the institution. It has already undertaken various initiatives to warrant such high-quality and responsible research, e.g. by subscribing to the Code of Ethics for Scientific Research in Belgium and the European Charter for Researchers, by establishing a Commission on Scientific Integrity, and by drawing up the Integrity Charter. In addition, research data turn out to be key to uphold high-quality research. By implementing a policy plan on research data management Hasselt University aims to manage its research data in the best manner possible.

This policy plan on research data management at Hasselt University outlines the basic principles and general guidelines for the secure, findable, accessible and understandable preservation, for the management, the reuse (if possible) and the (public) sharing and archiving of research data at Hasselt University for the purpose of (re)use, verification or data collection. It lays down a general framework within which researchers, employees and students at Hasselt University manage their research data in a high-quality manner. These basic principles and general guidelines are based on both national and international developments in the field of research data management, and should be read together with the related regulations and guidelines, as listed in attachment 1 to this policy plan.

1. Terminology

Researcher: refers to any natural person who is conducting scholarly and/or academic research and is registered at Hasselt University, both paid and unpaid, and including doctoral students.

Student: refers to any student who is attending a bachelor or master programme, a preparatory or bridging course, an advanced master, a teacher training or postgraduate certificate programme, an internship, an exchange study programme or credit contract at Hasselt University.

Hierarchical responsible: depends on the statute of the researcher and his/her position within the research and organizational structure of Hasselt University. The hierarchy can be described as follows:

- Academic staff members (AAP, BAP [*PhD*], ZAP) < PI research group / director research institute < Dean < Vice-Rector Research < Rector
- Administrative and technical staff members (ATP) < Coordinator unit < Director < Vice-Rector or Administrator < Rector
- Student < (co-)Supervisor < PI research group / director research institute < Dean < Vice-Rector Research < Rector

Research data: refers to all data and objects – whatever their form or method – that are generated, collected or used in the context of any research project. As a result, this broad definition includes a wide array of types and formats of data, ranging from raw data to processed and even published data. It may refer to both digital and physical data, and to data generated by the researcher himself/herself (primary data) as well as to data obtained from third parties (secondary data).

Examples may include, but are not limited to: notes, surveys, figures, objects, audio-visual files, spreadsheets, databases, statistical data, geographical data, research software, simulations, samples (including biological material, personal data, patient data, etc.).

Metadata: refers to data that describe the characteristics of the actual research data as to be able to identify and retrieve the latter more efficiently, that reflect the structure and composition of the research data and that facilitate the management of research data.

For example, the title of a dataset, the names and affiliations of the researchers involved, a persistent identifier, version number, the relationship with an existing research project or scholarly publication, the date of creation, the file format, the access rights, etc.

High-quality research data: research data are deemed to be high-quality, when they are accurate, complete, authentic, reliable, understandable, identifiable, documented, findable, accessible, securely stored and secured.

Anonymous (anonymized) research data: refers to research data that don't relate to an identified or identifiable natural person or to personal data rendered anonymous in such a manner that the data subject is not or no longer identifiable.

Pseudonymous (pseudonymized) research data: refers to personal data that are processed in such a manner that the personal data can no longer be attributed to a specific data subject without the use of additional information, provided that such additional information is kept separately and is subject to technical and organizational measures to ensure that the personal data are not attributed to an identified or identifiable natural person.

Personal data: refers to any information relating to an identified or (in)directly identifiable natural person. Examples include, without being limited to: name, address, telephone number, chassis number, email address, IP address, age, gender, origin, image, way of life, personal opinions, etc. Each researcher collecting and/or processing personal data, must comply with the regulations concerning the protection of personal data.

Special categories of personal data: refers to particular personal data that are more sensitive by nature. Examples include, without being limited to: personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and genetic data, biometric data for the purpose of uniquely identifying a natural person, data concerning health (including medical information), data concerning a natural person's sex life or sexual orientation, and data relating to criminal convictions and offences.

Record of processing activities: each controller and, where applicable, the controller's representative, shall maintain a record of processing activities under its responsibility. Art. 30 GDPR lays down the information that this record should contain.

Data minimization: refers to the fact that personal data shall be adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed. As a result, researchers should, as far as possible, only process personal data that are necessary for their specified research purposes.

Data Protection Officer (DPO): (s)he is a staff member of Hasselt University and is designated to supervise the processing of personal data on behalf of Hasselt University. The Data Protection Officer (DPO) monitors implementation of and compliance with the General Data Protection Regulation within Hasselt University.

Confidential research data: refers to research data that need to be treated confidentially on account of a third party (internal/external) agreement.

Inventions: refers to research results, as described in article IV.48.§1 of the Codex Hoger Onderwijs. That is to say potentially patentable findings, breeding products, designs and models, topographies of solid-state products, computer programmes and databases that could be used for commercial purposes when being applied in industry or agriculture.

Open data: refers to research data that can be freely (re)used and shared by anyone, subject to the requirements of attribution and share-alike.

Storage: refers to the recording of research data during the research (project).

Preservation: refers to the recording of research data after the end of the research (project). Long-term preservation, in addition, refers to the recording of research data beyond a certain period (e.g. five years) after the end of a research (project).

2. Scope

This policy plan applies to all research data that are generated, collected, processed, preserved, archived or exchanged before, during or after the research project at Hasselt University by researchers within the framework of their affiliation to Hasselt University.

Unless explicitly stated otherwise, this policy plan likewise applies to students within the framework of their affiliation to Hasselt University.

3. Basic principles

The basic principles of this policy plan on research data management are:

1. During the entire research data life cycle, each researcher at Hasselt University must store, preserve and manage his/her high-quality data, and make them as (publicly) available as possible for potential reuse. In addition, research data must be managed as required by third parties, including funders, collaborating partners and government agencies. Each researcher at Hasselt University must observe and implement the basic principles and general guidelines, as set forth in this policy plan on research data management, before, during and after each scholarly research project.
2. This policy plan on research data management complements existing legislation and regulations, and further specifies contractual obligations, research ethics and integrity guidelines.
3. Personal data can only be collected and used when essential for a specific research question.
4. All research projects require a data management plan (see art. 6).
5. Researchers must comply with the current guidelines regarding the correct use of his/her Hasselt University user account, as set forth in the Acceptable Use Policy (AUP). Access rights to certain data are granted following the Identity and Access Management (IAM) procedures. The premises and infrastructure of Hasselt University are only accessible for researchers and individuals with a valid access permission.

4. Support by Hasselt University

4.1 Collaboration

In this policy plan on research data management, Hasselt University takes the lead by outlining the basic principles and general guidelines. Pivotal is the collaboration between Hasselt University, the researchers, the faculties, the research groups, the research institutes and the central administration.

4.2 Awareness

Hasselt University commits itself to stimulate researchers to implement this policy plan on research data management by promoting and facilitating it.

The central administration offers support by providing training, advice, guidelines and templates for managing research data and writing data management plans. In addition, the basic principles and general guidelines of this policy plan are further explained on the portal site of the university. Through the funds obtained from the *Flemish Open Science Board*, the central administration of Hasselt University also offers support to researchers of the Limburg Association of Higher Education (AUHL).

4.3 Support

Besides this policy plan on research data management, Hasselt University is working on guidelines in order to meet both the practical and the technical needs of researchers, faculties, research groups and research institutes. Because of the considerable differences in data types and related data handling practices and needs between and within the various scholarly disciplines in which research is performed at Hasselt University, this policy plan on research data management aims to provide a general framework upon which the various disciplines can build. To this end, researchers can call upon the data steward who is assigned to their specific discipline.

5. Management of research data

Each researcher should essentially take the responsibility for the optimal management of high-quality research data. This implies that each researcher ensures that all research data are provided with documentation and adequate metadata that are prerequisites to enable the understanding and reuse of these research data. In order to store and describe research data in a high-quality manner, Hasselt University offers support with the implementation of a selection of Electronic Lab Notebooks (ELN).

6. Data management plan

The researcher must write an initial data management plan within six months of the official start of the research project. In this plan, (s)he will describe the procedures for collecting, storing, (re)using, accessing, archiving and destroying the research data before, during and after the research project. This initial data management plan should be updated throughout the project. A final version must be submitted after the end of the research project.

Both the initial data management plan at the start and the final version after the end of the research project must be submitted to the Directorate Research, Library and Internationalisation at Hasselt University (rdm@uhasselt.be). In addition, an external funding agency can require to receive one or both versions of the data management plan.

Each data management plan must comply with the basic principles and general guidelines, as set out in this policy plan, as well as with the policy or requirements, as set out by third parties. To this end, Hasselt University provides the necessary tools that are available to all researchers at Hasselt University.

7. Relevant regulations

The researcher is responsible for observing the relevant regulations. These include, without being limited to:

– intellectual property rights;
– research ethics, as laid down, for instance, in the ALLEA European Code of Conduct;
– privacy legislation, including the General Data Protection Regulation nr. 2016/679;
– the European Dual-Use Regulation nr. 428/2009;
– the European Regulation nr. 511/2014 of the European Parliament and of the Council of 16 April 2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union, and The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity, 29 October 2010;
– the Hasselt University Information Security Policy Plan;
– the Acceptable Use Policy with regard to the security and the storage of data, as defined by the Information Security Committee of Hasselt University;
– any additional regulations, as laid down in agreements with third parties, and any additional requirements, as laid down in the regulations of external funding agencies (see attachment 1, §1).

In case that the regulations of external funding agencies or the agreements with third parties contain more severe or specific requirements regarding research data management, these will prevail over the general guidelines and principles set out in this policy plan.

8. Security of personal and confidential research data

When research data contain personal or otherwise confidential information, the researcher should observe the following provisions. As a matter of fact, similar measures necessary to prevent access

by unauthorized parties should be taken to protect not only digital data, but also confidential information on physical carriers (e.g. survey responses on paper).

Hasselt University provides tools that can be used by all researchers at the university. Through its portal site, the university offers technical and practical support.

8.1 Anonymizing research data

Researchers should always try to process anonymous research data as much as possible. Anonymized research data don't relate to an identified or identifiable natural person; these personal data are rendered anonymous in such a manner that the data subject is no longer identifiable.

It is advised to document the anonymization techniques used and the related risk analysis in detail, e.g. in a so-called 'Anonymization Pseudonymization Plan' (APP).

8.2 Pseudonymizing research data

Research data containing personal information can be pseudonymized. The use of pseudonymized data is only allowed if the additional information on these pseudonymized data is kept separately and is subject to technical and organizational measures to ensure that the personal data are not attributed to an identified or identifiable natural person.

It is advised to document the pseudonymization techniques used and the related risk analysis in detail, e.g. in a so-called 'Anonymization Pseudonymization Plan' (APP).

8.3 Encrypting research data

Research data should be encrypted as much as possible. That is to say that data should be encoded as to protect the information contained. It is advised to assign the task of encrypting to an expert at the Central Information Technology Service (CID).

8.4 Confidential research data

Researchers should always be aware of the implications of non-disclosure agreements protecting confidential research data, and should respect this confidentiality. When the researcher feels that certain research data should be treated confidentially although an agreement with the third party concerned is still lacking, (s)he is responsible for reporting this lacuna to Tech Transfer Office (TTO), so that an agreement can still be drafted.

9. Storage and preservation of research data

9.1 Basic principles

Before, during and after a research project at Hasselt University, research data can be recorded in high-quality facilities as provided by Hasselt University. Through its portal site, the university offers technical and practical support.

However, in case research data are managed in external facilities, the researcher will clearly indicate this in the data management plan and clarify how, when and by whom these data can be consulted.

9.2 Storage and backup of research data during the research project

Storage of research data during the research project

Preferably, researchers make use of the facilities provided by Hasselt University (e.g. Google Drive). (S)He should use a shared storage platform (e.g. Google Shared drive). Via such shared platform, one should share his/her research data with his/her hierarchical responsible and, if applicable, with the members of the research group. The alternative of a personal storage platform (e.g. Google My drive) should only be used for personal (yet work-related) files, or if collaboration with partners within or outside Hasselt University is not necessary.

However, if researchers choose to make use of external facilities, they should first seek permission to do so via the IT Service Desk. In this case, the researcher himself/herself and his/her hierarchical responsible accept responsibility for the high-quality storage of the research data.

Finally, researchers are strongly discouraged from using media that are highly susceptible to damage and loss to store their research data, including e.g. local hard drives, external hard drives, USB drives, etc.

Backup of research data during the research project

A backup is essential to safeguard important and valuable research data in case of loss of or damage to the data on the original carrier. If one makes use of the institutional facilities mentioned above, such backup strategy will be provided by default. However, if one chooses to make use of an external facility, the researcher himself/herself will be responsible for implementing a backup strategy. For more information, one should contact the Central Information Technology Service (CID).

9.3 Preservation of research data after the end of the research project

Research data that were generated or collected within the framework of a completed research experiment or analysis, and that the researcher considers to be valuable for (re)use, verification, valorization or data collection, should be preserved. Moreover, when the research data are part of a scholarly publication or patent application, they must be preserved in any case.

Research data should be preserved in their most original (or raw) condition in order to make (re)use, verification, valorization and data collection possible. In addition, the data should be preserved as far as possible in a standardized (that is, uniform) and safe manner and – if applicable – in accordance with international disciplinary guidelines. This implies that the researcher takes into account (legal) requirements on anonymization, pseudonymization and encryption, as set forth in §8. Similarly, the researcher should comply with the guidelines concerning data management, as formulated by the Information Security Committee (see attachment 1, §7). In addition, research data should always be accompanied by the documentation that is necessary to understand their origin, generation, collection, processing and analysis.

For archiving research data after the end of a research project, researchers preferably make use of an external disciplinary database, next of the institutional repository or cloud-based facilities provided by Hasselt University, and finally of an external general database.

9.4 Preservation period

After the research experiment and analysis have been wrapped up, the raw research data that are relevant for (re)use, verification, valorization or data collection, must be preserved for a period of minimum five years, at least insofar as legal, contractual or disciplinary regulations don't deviate herefrom. If the research data contain personal data, the researcher should always comply with the General Data Protection Regulation (GDPR). If the research data are part of a publication, this term can be extended to a period of minimum five years after the official date of publication.

In addition, if the costs for data curation are in proportion to the academic, socio-cultural or economic added value of the (relevant) research data, the latter can be archived for the longer term, that is after the minimum preservation period of five years has elapsed. Such long-term preservation is only decided upon in close consultation with the researcher or his/her hierarchical responsible.

9.5 Disposal of research data

Researchers should destroy research data that are not (no longer) relevant for (re)use, verification, valorization or data collection – at least insofar as legal, contractual or disciplinary regulations don't deviate herefrom. Besides, researchers leaving Hasselt University should comply with yet additional measures, as set forth in §12.

9.6 Hasselt University Metadata Repository for research data

Researchers at Hasselt University are required to submit the descriptive metadata of their datasets resulting from research at Hasselt University, whether or not underlying a peer-reviewed publication, to the Metadata Repository. The latter is integrated in the institutional repository of Hasselt University (Document Server), in which researchers currently already deposit their publications and other research outputs.

10. Intellectual property rights to inventions

The intellectual property rights to inventions belong to Hasselt University, with the exception of inventions by students. Researchers, with the exception of students, must disclose inventions to Hasselt University Tech Transfer Office (TTO), prior to any other disclosure. TTO is responsible for protecting (e.g. by filing a patent application) and valorizing (e.g. by granting rights of use to third parties) these inventions.

However, the researchers involved retain all moral paternity rights. In addition, in accordance with the AUHL valorization regulations, they are entitled to compensation in case their valorized inventions generate income.

On the other hand, in case of inventions by students, intellectual property rights belong to the student himself/herself, as is set out in the 'Regulations concerning the rights to research results and rights to copyright works of bachelor's and master's students at Hasselt University, tUL and partner institutions in a joint study programme'.

If students produce inventions that are part of research at Hasselt University, arrangements should be made so that Hasselt University is able to protect and valorize these inventions, or otherwise. In this case, the supervisor of the student should inform TTO in time.

11. Reuse of research data

11.1 Reuse by a third party

When a researcher at Hasselt University requests to use the research data of another researcher at Hasselt University, the hierarchical responsible of the latter researcher is authorized to grant or deny access. The hierarchical responsible tries to discuss this first with the researcher as far as possible before granting access. In this regard, the interests of the researcher at Hasselt University will always prevail. Supplementary conditions upon which access is granted, can be added by the hierarchical responsible.

When an external party requests to use the research data of a researcher at Hasselt University, or, conversely, a researcher at Hasselt University requests to use the research data of an external party, TTO should be informed in order that the proper written agreement can be drafted, in accordance with the Hasselt University Delegation Act (see attachment 1).

11.2 Public sharing

Examples of public sharing include: depositing research data in publicly accessible databases or repositories, presenting research data at conferences (unless the conference takes place within a closed network and a confidentiality agreement was concluded), sharing research data via social media, publicly exhibiting art works, etc.

12. Researchers leaving Hasselt University

Research data that are collected and/or generated within the framework of a research project at Hasselt University, must be preserved and remain accessible for the appropriate period of time by the hierarchical responsible of the researcher leaving Hasselt University, unless contractual agreements with third parties deviate from this principle.

As set forth in §10 of this policy plan, the intellectual property rights to inventions belong to Hasselt University, with the exception of inventions by students in a bachelor or master programme, or in a bridging or preparatory course. By consequence, a researcher is not allowed to take his/her invention with him/her upon leaving Hasselt University.

Researchers collaborating with other researchers or with third parties should make clear written arrangements concerning the management of the research data involved at the start of the research

project. Such agreements concerning the management of research data in collaboration with external parties are laid down by the Tech Transfer Office, with regard for the Hasselt University Delegation Act.

In case research data need to be disposed of, written consent by the researcher and by his/her hierarchical responsible is necessary. This written consent contains an elaborate motivation clarifying and approving both the specific datasets concerned and the reasons to destroy them. The researcher will provide the Central Information Technology Service of Hasselt University with this document. In addition, the destruction of the data itself should comply with applicable regulations (see attachment 1); the researcher leaving Hasselt University bears this responsibility.

Finally, the researcher leaving Hasselt University must observe the regulations concerning the processing of reusable and old devices, (research) data, media and documents, as drafted by the Information Security Committee, in order to prevent that the data that are stored on these devices should fall into the hands of unauthorized parties (see attachment 1, §7).

13. Sanctions in case of non-compliance

Each researcher is essentially responsible for complying with this policy plan and with the guidelines listed in the attachment. (S)He will be severally liable in case these are not observed.

In addition, the Data Protection Officer is empowered to take measures internally in case of non-compliance with this policy plan, in particular with regard to the protection of personal data.

Attachment 1 to the General policy plan on research data management at Hasselt University: Related regulations and guidelines

The policy plan on research data management at Hasselt University should be read together with:

1. The guidelines and documents that are available on the website of the Directorate Research, Library and Internationalisation of Hasselt University.
2. The Code of Ethics for Scientific Research in Belgium.
3. The European Charter for Researchers.
4. The Integrity Charter of Hasselt University.
5. The Scientific Integrity policy at Hasselt University.
6. The Open Access policy at Hasselt University.
7. The Hasselt University Information Security Policy Plan, the Acceptable Use Policy, and the information brochures regarding data management and old data of Hasselt University.
8. The Hasselt University Research and Innovation Policy Plan.
9. The AUHL valorization regulations [in Dutch].
10. Hasselt University Delegation Act [in Dutch], and Regulations concerning the rights to research results and rights to copyright works of bachelor's and master's students at Hasselt University, tUL and partner institutions in a joint study programme.