



**The legal status
of research data in the Knowledge
Exchange partner countries**

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About Knowledge Exchange

Knowledge Exchange is a cooperative effort between four European organisations that support the use and development of Information and Communications Technologies infrastructure for higher education and research. The four partners are Denmark's Electronic Research Library (DEFF), the German Research Foundation (DFG), the Joint Information Systems Committee (JISC) in the UK and the SURFfoundation in the Netherlands. Based on the four national strategies the joint vision of the initiative is to make a layer of scientific and scholarly content openly available and re-usable on the internet. For further information see <http://www.knowledge-exchange.info/>

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Executive Summary

The central aim of this report is to identify whether Intellectual Property (IP) rights can form any obstacle to sharing publicly funded research data under open access terms. To the extent that such obstacles do indeed exist, the report makes some suggestions as to how these could be resolved. These questions are answered with the vision of Knowledge Exchange (KE) in mind: to ensure that data that are generated by publicly funded research can freely be shared and reused for further scientific research in all the KE partner countries (the United Kingdom, Denmark, the Netherlands and Germany). Public research funding agencies have an important role to play in ensuring that IP rights pose no obstacles, and they should take a proactive stance in ensuring the open access availability of research data.

Although it is generally believed that research data are factual information and that facts cannot be subject to IP protection, the legal reality is more complicated. To be susceptible to human communication, data are always put into some sort of specific form. They are written down in numbers, tables, data fields, graphs or text. Sometimes they consist of imagery, video or sounds. Even if the contents – the bare facts – cannot be protected by IP rights, some aspects of their form may be. Copyrights, database rights, and related regimes, can all protect some or all aspects of the form in which data are put. If protection applies, the data, in their protected form, cannot be shared or reused without permission from the owner of the rights. This does not mean that applying open access policy to such data is impossible, but it does suggest that further steps need to be taken to ensure that permission is granted by default.

A survey of the laws of the KE partner countries shows that copyright law differs between the UK and the continental countries. In the UK, the threshold for copyright protection is relatively low and it may rather easily allow for collections of factual data to be protected. In the continental countries, the threshold is much higher. Both originality and creativity are required, which implies that the author has to have made subjectively determined choices in the way he has shaped or selected the data. Though not impossible, copyright protection for research data will occur relatively rarely: data are often shaped or selected according to technical standards or objective requirements and will not differ in any characteristic manner between scientists. There remains, however, a small chance that a selection or shape, or certain aspects thereof, are held to be sufficiently creative and distinctive to warrant copyright protection. As this strongly depends on the way the facts are presented in a dispute and weighed by a judge, it is difficult to predict under which circumstances copyright protection is likely.

Database protection would seem to be a more likely candidate for offering protection to sets of factual data. Harmonized throughout Europe, its purpose is to offer exclusive rights to reproduce and communicate collections of data (databases). However, database protection only applies if there has been a substantial investment in the collecting, verification and ordering of existing data. The European Court of Justice has ruled that the time and effort it

has taken to 'create' new data through research should not be considered in determining whether there has been substantial investment in the database. This significantly limits the database protection for sets of research data. Most of the investment will be directed towards conducting research and creating the data. Only if, in addition to the research costs, substantial investments have been made to create the database, can database protection apply. This situation exists in all KE partner countries.

While copyrights and database rights are not likely to apply to most research data, some of the KE partner countries provide for subsidiary regimes of protection for material that does not fall under the scope of either copyright or database right law. Dutch law provides for the protection of unoriginal writings, and Danish law features the catalogue rule. Both are intended to protect works that are neither original or creative, nor constitute a protected database. They are likely to apply to collections of factual information, including research data sets. Though the scope of protection is rather limited (no one-on-one copying allowed, but the data can freely be used in a new form), these regimes do pose an obstacle to sharing and reusing research data. With the datasets being distributed and copied in full, permission from the author is required. However, as these regimes introduce new types of protection for collections of information, they are likely to violate the Database Directive, which is intended to harmonize this issue fully. The Danish courts have already given a very restrictive interpretation of the catalogue rule, which significantly reduces its role with regard to collections of research data. The Dutch protection of unoriginal writings, however, remains an obstacle.

Based on the review of the IP laws in the KE partner countries, the report suggests that KE takes the following initial steps to ensure open access availability of research data in the future.

1. Remove any potential IP rights obstacles to open access to research data. If IP protection applies to research data – which may sometimes be the case – permission from the right holder is required for sharing and reusing the data. To avoid any obstacles, stakeholders should at least arrange for exceptions for the use of research data for research purposes. This ensures that intermediaries and users of data can be certain that no IP obstacles exist. Sharing and reusing could be regulated through codes of conduct to deal with issues such as attribution and further use. This approach provides more flexibility than licences that could be used to obtain permission from right holders.
2. Ensure further harmonization of IP laws, in particular copyright law. The current level of the EU harmonization of copyright law is insufficient to allow easy contractual arrangements for multi-territorial use. There are no clear rules on the law which is applicable to the ownership and transfer of rights, which would require different contractual arrangements for each jurisdiction in which the data are used. This problem is exacerbated by the fact that rules on the ownership of rights in

employment relationships and regimes for transferring and licensing rights differ drastically. Furthermore, the divergent criteria for copyright protection and the existence of subsidiary protection regimes (in violation of the Database Directive) create an unequal playing field, with different rights being granted to the same data across jurisdictions. It should finally be mentioned that an exception or limitation to allow protected research data to be shared and reused for non-commercial research purposes would seem desirable throughout Europe.

3. Clarify the role of the interests of private parties. Third parties that are involved in a research project may have an interest in keeping the research data secret. At this point, it is unclear whether data could be exempted from open access policy, at least for some time, in order to allow a private party to exploit the data commercially. This could be an important interest in research projects that are partially funded by commercial parties. On the other hand, secrecy agreements lead to factual monopolies on the use of research data. A balance should be struck. Further clarification is also required for data that are not generated by research but are supplied by a third party. Third party data will often be subject to privacy agreements, but in practice they are likely to be mixed with research data that are required to be shared under open access terms.

1. Introduction

1.1 Relevance

Access to research data is primarily relevant for researchers who intend to use the data for new research and new publications. In the discussion on the improvement of access to data originating from research, the issue of intellectual property right regulations regarding primary research data is a recurrent topic. Not so much the actual legal regulations, but rather the lack of legal expertise and the high risk of misunderstandings by different stakeholders are about to become serious obstacles to researchers benefiting from the huge value of access to research data. It is important to know the legal status of the data to be shared. The law may protect data by intellectual property rights, meaning that certain uses of the data require consent, for example from the “author” of the data. However, not all data are protected by law, and not every use of protected research data requires the author’s consent. Several types of use of protected research data can be carried out without consent. This report aims to improve the knowledge and awareness of intellectual property law constraints and challenges in the field.

1.2 Purpose and research question

There is an increasing recognition that organisations and individuals involved in publicly funded research have a responsibility to ensure that research outputs are made widely available and are shared for reuse in new research projects. While open access to research data is a widely recognized goal, achieving it remains a challenge. As European national laws still diverge and sometimes remain unclear, it can be difficult for interested parties to comprehend in which ways open access to research data can be legally obtained.

The research report in this specific project aims at informing Knowledge Exchange (KE) on the state of the law concerning access to research data in the KE partner countries (Germany, Denmark, the Netherlands, and the United Kingdom) and to give an insight into how these laws work in practice in several characteristic situations pertaining to open access to research data.

Finally, the purpose of this report is to identify flaws in and obstacles to accessing research data and to single out any preconditions for openly available data in view of the current discussions concerning open access to research data, especially those originating from publicly funded research. The report aims to answer the following question:

Is there an urgent need to take action in this special field or is the present legal situation stable enough to allow public funding bodies to insist on the utmost accessibility of primary data from research projects?

This report intends to be both a description of the status quo of the legislation and a practical instrument to prepare further activities in raising awareness on the potential benefit of improved access to research data, and developing means to support improved access for research purposes.

1.3 Method and plan of discussion

This report is a comparative report on existing legal regulations and arrangements concerning research data in the four Knowledge Exchange partner countries. It is structured to serve the purpose of a comparison between the legal regulation in place in Dutch, UK, German and Danish law. The structure is based upon a functional approach which fits the legal structure of all jurisdictions.

The five expert reports identified by the KE working group on primary research data form the starting point for our comparative study.¹ Moreover, the CIER conducted extensive research on other direct and relevant sources in order to be able to complete the study according to the assignment, since not all of the reports were entirely relevant.

After the introduction on goals and methods, the main report is structured as follows:

- An overview on the legal status of research data in the four partner countries of Germany, Denmark, the United Kingdom and the Netherlands (Chapter 2);
- A comparison of the results (Chapter 3);
- A summary of the main hindrances to improved access to research data from a legal perspective (by analyzing the presented examples and by referring to the applicable law and/or its apparent gaps and uncertainties) (Chapter 4);
- A synthesis: The first recommendations for possible approaches to overcome hindrances and more general recommendations for the most important steps that should be taken (Chapter 5).

1.4 Research data

For the purpose of this report the term research data is understood broadly without reference to specific research areas or the form of the data (whether separate items of data, datasets, or databases). The focus is on research data that have not yet been incorporated in a publication, for example data gained from measurements or observations. “Research data”

¹ M. De Cock Buning, A. Ringnalda and T. Van der Linden SURF/CIER, *The legal status of raw data: a guide for research practice*, SURFfoundation 2009; G. Spindler, *KoLaWiss-Projekt Arbeitspaket 4: Recht*, Universität Göttingen 2009; M. Bryde Andersen, *Rettighedsproblemer i forskningssamarbejder – en vejledning fra UBVA*, Kopenhagen Akademikernes Centralorganisation 1998; R. Grim, T. Place and M. Reid, *NEEO Report on the selection and implementation of the data repository ECP 2006-DILI-510001*, 2009; R. Grim, P. Heus, T. Mulcahy and J. Ryssevik *Secure Remote access system for an upgraded CESSDA*, 2009.

(or “research information”) is a very broad term. In the humanities, the following definition can be found:²

All data collected in some way or another in the context of scientific/scholarly research. A distinction can be made between primary data (empirical, observed, measured data) and secondary data. Secondary data is data derived from sources created previously (figures published by the authorities, data assembled previously, archived data, texts, etc.).

This definition is a formal and not a material one: it indicates merely *when* data can be designated to be research data, but it does not contain any actual definition of the term “data”. Given the wide-ranging nature of research data, such a definition would be virtually impossible.

A somewhat different definition can be found in the natural sciences:³

A datum is an element that has relevance and semantic value. Data is used to describe features of persons, things, actions, etc. taken from reality.

Metadata are data that describe the characteristic features of certain information; in other words, it is data about data. The metadata with a particular document may include such things as the name of the author, the number of pages, and the language in which the data is provided. The purpose of including metadata with the data to which it relates is to make the latter easier to find. Metadata is sometimes added automatically, but generally human intervention is required.

1.4.1 Data and the law

Basically, any type of data – whether separate items of data, datasets, or databases – may qualify for some kind of protection. Whether data are in fact protected must be determined on a case-by-case basis. We can, however, provide guidelines that can be used to assess the legal status of research data. This would allow an estimate of the extent to which the protection of research data by IPRs could be an obstacle to open access availability. In developing such guidelines, we need to focus on research data in their most primary form, as they arise from measurements or observations. This means that research data are data that have not yet been incorporated in a publication etc.; if they have been incorporated in a publication, one soon arrives in the domain of the copyright to which books, articles, etc. are subject. This report will deal, however, with data that have been processed to a very limited

² See for example H. Tjalsma & J. Rombouts, *Selection of Research Data – Guidelines for appraising and selecting research data*, The Hague: Data Archiving and Networked Services (DANS) 2011, p. 13, 14, available at http://www.dans.knaw.nl/sites/default/files/file/publicaties/Selection_of_research_data_DEF.pdf (June 2011).

³ R.P. Langerhorst, *Gegevensanalyse*, The Hague: Academic Service 1981, p. 6-8.

extent, for example by being selected or filtered, and data that have been converted into an ordered database.

The report will therefore consistently work on the basis of the *legally* relevant definitions of the term “data”. For some data, the law provides no protection. As will be explained below, facts are basically free; we then talk of “the bare facts”. Some data are in fact subject to legal protection. That may be the case if the facts concerned have been put into a certain form or if they constitute a protected database or data collection. In such cases, we are dealing with more than merely the bare facts themselves and we speak of “protected data”. We will use the term “research data” to refer both to the bare facts and to protected data. When reading this report, the reader should be conscious that relevant legal terminology often does not correspond with the ordinary use of the terms. Whenever a term appears familiar, one needs to realize that it has a very specific meaning in legal language.

Example

We can illustrate this with use of the term “database”. The law provides that, under certain conditions, databases may be subject to a certain amount of protection. This, in accordance with ordinary usage, can lead to a presumption that “databases” in the sense of large, indexed, digital collections of associated data enjoy protection. Legally speaking, however, that is not in fact the case. The legal definition of “database” is very specific. On the one hand, it sets no requirements regarding the size of the database or the medium on which it is recorded. A telephone book may be a database, but so may a short table. On the other hand, the legal definition stipulates all sorts of other requirements for a data collection before it can be qualified as a database. The database must, for example, have been created by means of “substantial investment”. If there has been no substantial investment, the collection of data concerned is not a database from a legal point of view, even though the term will ordinarily be used to refer to such a collection.

2 Overview on the legal status of research data in the four partner countries

This chapter contains an overview of the legal status of research data in the Netherlands, Denmark, Germany and the United Kingdom. See Annexes 1-4 to this report for the full country reports with complete, up to date and relevant information that underpin the findings that are reported in this second chapter.

2.1 The Netherlands

In the Netherlands open access to research data can be restricted by three different regimes of intellectual property protection: copyright, database right and the protection of non-original writings.

2.1.1 Copyright

Under Dutch law, research data may be protected by copyright if they have been processed by an author, for instance if the data have been selected or structured or put into some sort of form. Copyright protection will exist if the author was free to make choices in the manner of processing the data, and if he or she made these choices in his own, personal way. As a rule of thumb, copyright protection cannot exist if it is conceivable that two different authors, working separately, are likely to arrive at precisely the same form. Any such case would probably lack the required originality and personal stamp of the author. The Dutch High Court has accepted that copyright protection can apply if choices were determined by objective technical or scientific standards rather than personal preferences and creativity.

Data and information do not enjoy copyright protection and may always be reused. However, the form in which they are put may qualify for protection if this shows originality and the personal stamp of the author. The protected form may consist of the manner in which the data are written down or otherwise depicted (audiovisual data), in their selection, or in the manner in which they are structured. If the criteria for copyright protection are complied with, the phrasing, depiction, selection, or structure of the data may be protected.

Even though data may be copyright-protected, the following actions can still generally be carried out without consent:

- Incorporation of the factual data in one's own words and in a structure of one's own;
- making a copy (including a digital copy) and utilizing that copy for one's own research, as long as the original data is not made available to others;
- citing from the research data;
- all acts with works produced by the authorities are not protected by copyright unless explicitly stipulated;

- copying a work for personal use.

Consent is therefore necessary for other types of use of copyright-protected data (or data collections). This may involve such things as:

- The inclusion of the research data in a publication;
- sharing the research data with other people;
- making the research data available online;
- including the whole of the research data in a database of one's own that is also shared with other people.

For these uses, one must obtain the consent of the right holder. Under Dutch law, the right holder is usually the author. However, in some cases the copyright will be owned by another party. If the protected research data are created within the scope of a labour agreement, the employer is designated by law as the right holder. This only applies if the protected work is made under the sufficiently detailed guidance of the employer, so that the employee who made the work cannot be said to have made any subjectively determined choices. The author may also have transferred his copyright to a third party, such as a contractor or funding organization. Transfers of rights require a written contract.

Once the right holder is identified, consent for using the protected data can be arranged. There are no formal requirements for giving consent. Consent can be given orally or in writing, though a written agreement is preferable for reasons of certainty and clarity. When arranging consent, one must agree on exactly what kind of use of the work is permitted.

2.1.2 Database right

Under the Dutch implementation of the European Database directive, a collection of separate items of data – whether or not these elements themselves are protected by copyright or other IPR regimes – may be protected as a database if those items are systematically arranged or are traceable in some other manner and the creation of the database has involved a substantial investment (in the gathering, verification and presentation of the elements that make up the database). The criterion of a substantial investment does not refer to investments made in researching and creating the data included in the database; only the investment that is made in gathering, verifying and presenting existing data elements is relevant for determining whether database protection applies.

The person or entity which has made the substantial investment qualifies as the database producer and enjoys the exclusive rights to distribute, reproduce and grant access to the database.

If there is in fact a protected database, the producer's consent is required for the following

actions:

- Making copies of the entire database or essential parts thereof (reutilization);
- making the entire database or essential parts thereof available to the public (extraction);
- retrieving (i.e. copying or downloading) substantial portions of the database;
- repeatedly and systematically retrieving non-substantial portions of the database;
- reusing (i.e. publishing) substantial portions of the database.

The producer's consent is not necessary for:

- Using a database for scientific/scholarly research if no substantial portions of the database are published (reusing);
- using a government database (unless there is an explicit stipulation to the contrary).

2.1.3 Protection of non-original writings

Any "writings", whether analogue or digital, can basically qualify for the protection of non-original writings. As this protection regime was developed in case law without any clear legal basis, no detailed criteria for protection can be given.⁴ Given the cases in which this type of protection has been assumed, it is quite conceivable that lists or collections of research data are also covered by this regime. There is one specific requirement for a non-original writing to qualify for protection, namely that it must have been published or be intended for publication. This means that it must have been provided for inspection by the public, or at least that the writing must have been intended for public distribution. This restricts the number of cases in which research data are protected as non-original writings.

As the protection of non-original writings mainly serves to protect the investment made in creating lists or collections of otherwise unprotected information, the scope of protection is limited to exact copying. If the listed information is reproduced manually, in a slightly different structure or with slight modifications, no infringement would occur. However, the protection of non-original writings does imply that consent is needed for publishing and reusing entire datasets that are protected under this regime, even if the datasets do not qualify for copyright protection or database protection.

2.1.4 Personal research data

Privacy can form an obstacle to reusing personal data and making them available. Personal research data are data that contain information that can be traced back to individual living persons. Anonymized data are not covered by the Personal Data Protection Act [*Wet bescherming persoonsgegevens, Wbp*] and can be used or shared with other people without concerns about privacy. However, combining anonymized data with other data – which may also be anonymized – may in fact produce data that can be used to trace the identity of the

⁴ Protection of non-original writings follows from section 10(1)(1) of the Copyright Act.

person concerned, so that privacy protection again becomes relevant.

The results of research should be published in such a way that it is absolutely impossible to trace them to the persons concerned, unless those persons give explicit consent for that to be done. Under Dutch law, making data available to fellow researchers – not only the research results but also the raw data on which those results are based – is permitted under certain conditions, even if personal data according to the Personal Data Protection Act are concerned. The most important condition is that the fellow researcher who receives the data is bound by the same rules for careful use, as described in the various codes of conduct. This generally means that personal research data (i.e. the non-anonymized type) can be shared for academic purposes only within Europe and certain approved countries.

2.1 Denmark

In Denmark open access to research data can be restricted by three different regimes of intellectual property protection: copyright, database right and the catalogue rule.

2.2.1 Copyright

If research data are to enjoy copyright protection they must be deemed to be literary or artistic and express a certain independent and creative activity on the part of the author (the originality requirement). Research data will often not fulfill these criteria. They are often considered to be facts in the public domain. This means that these facts can be used freely. Copyright may however arise with respect to certain elements such as maps, diagrams and photographs. Moreover, it is likely that research data consist of original elements such as qualitative interviews processed with a certain creativity on the part of the author or concern originally adapted texts of historical material. If research data or elements of research data are protected, for example as (part of) a copyrighted database, the following actions can be carried out without consent:

- The copying and using of bare facts of a work;
- citations;
- the copying and using of statutes, administrative regulations, case law and preparatory legislative reports;
- the copying of a work for personal use (excluding the right to make a digital copy for use outside the household or to make a digital copy of a database).

For all other uses, the consent of the right holder is required. The right holder is generally the author/creator; the exclusive economic rights may, however, have been transferred to a third party.

2.2.2 Database right

The European Database directive has been implemented in Danish law. Therefore, a collection of separate data elements may constitute a protected database under the database right, if these have been arranged systematically and the elements can be traced individually. However, it is also a requirement for database protection that there has been a “substantial investment” in the creation of the database itself. The investment made in the creation of the data (the research) does not count towards the substantial investment required.

The person or entity which has made the substantial investment qualifies as the database producer and enjoys the exclusive rights to distribution, reproduction and granting access to the database.

If a collection of elements is protected as a database, the producer’s consent is required for the following actions:

- Making copies of the entire database or essential parts thereof (reutilization);
- making the entire database or essential parts thereof available to the public (extraction);
- retrieving (i.e. copying or downloading) substantial portions of the database;
- repeatedly and systematically retrieving non-substantial portions of the database;
- reusing (i.e. publishing) substantial portions of the database.

Consent is not required for the following actions⁵:

- Using a government database consisting of acts, administrative regulations, case law etc. (sources of a normative binding character).⁶

2.2.3 Catalogue rule

Objects which are not considered to be literary or artistic works can enjoy protection under the Danish Copyright Act’s neighbouring rights. The catalogue rule, a common Nordic institution, protects catalogues, tables, and databases which do not fulfill the originality requirement for copyright protection and are not protected by the database right. The term catalogue is to be understood broadly; it protects various types of systematic collections such as telephone directories, price lists, registries etc. A collection of research data organized systematically may qualify for catalogue protection if it contains a substantial amount of information *or* is the result of a substantial investment. Given the fact that the protection offered is nearly identical to database protection, the catalogue protection is relevant if research data do not meet the requirements for database protection, for example, because there has been no substantial investment in the database.

⁵ There is no explicit exception included in Danish law on the use of a database for scientific/scholarly research if no substantial portions of the database are published (reused), However, due to the exception in the Database Directive in art 9.(b), Danish law should be interpreted in such a way that this exception is in place in order to be in line with European law.

⁶ In fact, no government database containing the case law of the courts exists in Denmark.

However, research data that do not qualify for database protection because of a lack of substantial investment cannot be protected by the catalogue rule according to the decision in the *Ofir* case.⁷ The catalogue rule has lost most of its relevance. Only catalogues that contain a substantial amount of information without being databases in the legal sense for other reasons than lacking a substantial investment (for example, because they lack a system for tracing individual elements) may still enjoy catalogue protection. Given the nature of most databases with research data, these instances should be deemed to be unlikely.

2.2.4 Personal research data

When research data contain information about living persons, privacy restrictions may arise. The Personal Data Act is based upon the European Directive on the protection of individuals with regard to the processing of personal data and the free movement of such data.⁸ If research data contain personal information about living persons, they must comply with the regulation contained in the Personal Data Act.

This law applies to personal information which may directly identify a person such as a name, address or personal identification number and to information which may indirectly identify a person. If a researcher wants to obtain personal data, for example by means of surveys or interviews, the person(s) concerned must give their explicit consent. When a research project has been completed, the personal data must be destroyed or anonymized. A researcher may only share personal data with other researchers with specific authorization from the Data Protection Agency.

2.3 Germany

In Germany open access to research data can be restricted by intellectual property rights such as copyright or the database right.

2.3.1 Copyright

First of all, it has to be noted that under German law there is no legal protection for bare facts, only the form in which such facts are presented can enjoy protection. For copyright protection to arise, it is necessary that a work meets two requirements:

- Originality (an intellectual creation)
- a personal feature (individuality)

Copyright protection can also arise for collections of data. The following criteria apply to copyright protection for collections of data:

⁷ Danish Maritime and Commercial Court, UFR 2006.1564SH, *Ofir*.

⁸ Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data.

- The collection consists of a gathering of multiple works, data or other independent elements;
- the collection must be a personal intellectual creation.⁹

Scientific research data will usually be summarized and presented in tables or diagrams. Sets of research data thus often comply with the first requirement for a collection. The collection must also be a personal intellectual creation. This means that the combination or arrangement of elements in a collection contains a distinctive structure due to subjective choices by the author. Original intellectual content must be created and its meaning must go beyond the mere sum of the incorporated data.

In practice, research data will rarely comply with the criteria for copyright protection. The data are usually a given from the outset and need merely to be assessed. Any leeway for personal decisions in choosing the results presented in a collection will hardly exist since collections of research data will often consist of a complete registration of data (e.g. the results from an experiment or from a survey) on which scientific conclusions can be based. Nor will there be much room for personal choices in the shaping of data collections. The arrangement of test results will generally be determined by the nature of the object involved. The arrangement is mostly fixed and predetermined. This makes copyright protection for research data and collections of research data fairly uncommon.

It should be noted that a database can also enjoy copyright protection as a sub-case of 'collections of data'. For a database to be protected by copyright the following requirements apply:

- The elements in the database have to be arranged in a systematic or methodical way;
- the elements in the database have to be individually accessible by electronic means or otherwise;¹⁰
- the database has to be a personal intellectual creation.

When a work is protected by copyright, the following use of the work can take place without the consent of the author:

- Copying bare facts of a work and putting them in a personal structure or choice of words;
- quoting a work;
- copying and making a work made by the authorities available (unless this work is explicitly protected by copyright);
- copying a work for personal use.

Consent is required for reproducing a copyright-protected work or for making it available. Consent can be arranged by concluding a licence with the right holder. Since copyright is

⁹ Section 4 (1) of the German Copyright Act.

¹⁰ Section 4 (2) of the German Copyright Act.

non-transferrable in Germany, the right holder is always the author of a work. The author can grant the right to use his work to another party by means of a licence. A licence can contain all kinds of provisions, restrictions and prerogatives for both parties. Consequently, provisions enabling open access to data after licensing can be stipulated in the licence itself.

2.3.2 Database right

In Germany databases can enjoy copyright and/or database right protection (the respective protection is subject to different criteria). As in other countries that have implemented the European Database directive, database protection exists if the following requirements have been met:

- The database is systematically or methodically arranged;
- the pieces of data in the database can be individually retrieved;
- the database has required a substantial investment.

A substantial investment in obtaining the data alone is not sufficient. The substantial investment has to pertain to the actual creation of the database. The person or entity which has made the substantial investment qualifies as the database producer and enjoys the exclusive rights to distribution, reproduction and granting access to the database.

Using a non-substantial portion of the database is allowed without the consent of the database producer if the portion is quantitatively and qualitatively insignificant.

Consent is required for:

- Making copies of the entire database or essential parts thereof (reutilization);
- making the entire database or essential parts thereof available to the public (extraction);
- retrieving (i.e. copying or downloading) substantial portions of the database;
- repeatedly and systematically retrieving non-substantial portions of the database;
- reusing (i.e. publishing) substantial portions of the database.

Consent is not required for a reproduction of a substantial portion of a legally protected database which has already been made available if this reproduction is made for:

- Private use;
- personal scientific research;
- illustration for teaching;
- use in (arbitration) court proceedings or in proceedings involving the authorities and for purposes of public safety.

Database protection lasts for a period of fifteen years after publication or creation of the database.

2.3.3 Personal research data

Regarding the exploitation of personal research data the legal framework is primarily provided by the Bundesdatenschutzgesetz (hereafter: BDSG). According to the BDSG, personal data can only be used if the law provides for this (e.g. by a court order) or when the person concerned has given his consent. In most cases consent will have to be given in writing.

The BDSG contains a specific provision on the processing and use of personal data by research institutions. It states that personal data collected or stored for the purpose of scientific research may be processed or used only for this purpose. The personal data shall be depersonalized as soon as the research purpose allows for this. Until this time the characteristics enabling information on personal or material circumstances to be attributed to an identified or identifiable person shall be stored separately. They may be combined only to the extent required by the research purpose. Institutions conducting scientific research may only publish personal data when the data subject has given his consent or if publishing the data is indispensable for the presentation of research findings on contemporary events.

2.4 United Kingdom

In UK law open access to research data may be restricted by copyright law and the database right.

2.4.1 Copyright

Copyright may apply to literary and artistic works. Literary works are works using letters, numbers or symbols. A literary work does not need to have any literary merit. It may, if deemed to be original, also include items such as tables, matrixes, reports, accounts, computer programs, databases, timetables and research data. Artistic works may be two-dimensional such as maps, drawings, paintings and photographs or three-dimensional such as a sculpture.

However, copyright protection only applies to literary or artistic works that are “original”. A work is considered to be original if its creation required sufficient “skill, judgment and labour”. A work thus requires a certain amount of creative intellectual activity and a certain amount of effort. The requirement may be described as modest when compared to the thresholds in the other countries, which all require creativity and individuality.

In a research context, copyright could apply to research data that have been recorded in a creative way with a minimum amount of effort (as opposed to a pure registration of facts – facts and information are not copyright protected). Databases that meet the requirement of skill, judgment and labour in their selection or structure may also be protected by copyright.

It should be noted that there is specific copyright protection in the UK for certain official documents, such as acts, preparatory reports etc. (crown and parliamentary copyright). Judgments may also be covered by copyright, but copyright is generally not asserted.

When a work is protected by copyright, the following use of the work can take place without the consent of the author:

- Copying of bare facts of a work and putting them in an personal structure or choice of words;
- fair dealing (insubstantial taking) in relation to: private and non-commercial research purposes, educational purposes, criticism and news reporting, use in libraries and archives.

Consent is required from the author of the work for reproduction, distribution and publication. The author(s) is/are generally the creator(s) of the work. If the work has been created in the course of an employment, the employer will normally hold the copyright. Copyrights may also be transferred to a third party.

2.4.2 Database right

Under the UK's implementation of the European Database directive, databases may enjoy database right protection. For database right protection to arise a database (consisting of independent works, data or other materials) has to be:

- Systematically or methodically arranged;
- accessible by electronic or other means;
- the result of a substantial investment (in the creation of the database rather than in the creation of facts).

The person or entity which has made the substantial investment qualifies as the database producer and enjoys the exclusive database rights.

Using a non-substantial portion of the database is allowed without consent. The lawful user may further extract a substantial part of the contents of a database for illustration for teaching and non-commercial research (such as academic research).

Consent from the producer is required for:

- Making copies of the entire database or essential parts thereof (reutilization);
- making the entire database or essential parts thereof available to the public (extraction);
- retrieving (i.e. copying or downloading) substantial portions of the database;
- repeatedly and systematically retrieving non-substantial portions of the database;
- reusing (i.e. publishing) substantial portions of the database.

2.4.3 Privacy

The UK Data Protection Act 1998 ensures that personal data held on living identifiable individuals (data subject) in automatic equipment or another filing system are not disclosed, contrary to the principles contained in the Act. The Act transposes two European Directives.¹¹ The Act protects personal data relating to an identifiable living individual if that individual can be identified from that data *or* from that data and other information in the possession of the data controller. Specific regulations exist for sensitive personal data concerning the subject's race, ethnicity, politics, religion, trade union status, health, sex life or criminal record.

A researcher who uses personal data has two options: to comply with the principles of the Data Protection Act, for example, to obtain consent from the data subject *or* to use anonymized data whereby the Data Protection Act does not apply. It is preferable to work with anonymized data. If this is not possible, an important exemption applies to data which are used *exclusively* for research purposes, provided that certain conditions are fulfilled. If the data have been obtained from a third person (the reuse of data), it is not necessary to inform the data subjects of the intended use. The researcher must still comply with the remainder of the data protection principles, e.g. not collecting more material than is necessary, complying with security provisions etc. Keeping personal data which is used exclusively for the purpose of research is not restricted to a certain period of time.

¹¹ Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data and Directive 97/66/EC of the European Parliament and of the Council of 15 December 1997 concerning the processing of personal data and the protection of privacy in the telecommunications sector.

3 Comparison of the results

This chapter contains four matrixes in which the essential elements of each country's protection regimes for data are listed. It aims to provide an instant insight into the characteristics and differences in the countries in question. In the second section it is listed what use of research data is freely allowed in which KE partner country. It gives a practical insight into the open access situation of research data. This chapter concludes by highlighting the similarities and differences between the applicable regimes of intellectual property protection.

3.1 Tables

3.1.1 The Netherlands

Copyright protection of research data in the Netherlands					
Type of data	Protection	Criteria	Protection Against	Exceptions	Right holder
Raw data	No protection of bare facts	- Literary, scientific or artistic work with an original character of its own, the personal stamp of the author (oc+ps)	No protection		
Maps, diagrams	Possible	- Oc+ps; may lie in personal creative choices in presentation form	- Reproduction - making available to the public	- Works by authorities - private use - citations	Author
Photos	Possible if the photograph was taken or processed by a human	- Oc+ps; may lie in choices of subject, composition, perspective	- Reproduction - making available to the public	- Works by authorities - private use - citations	Author
Composite works	Possible	- Oc+ps of the parts	- Reproduction - making available to the public	- Works by authorities - private use - citations	Author
Databases	Possible for databases which are collections of works, data or independent materials of which the pieces of data can be traced individually and a substantial investment in creating the database was made	- Oc+ps; may lie in choices based on scientific/technical knowledge, insight of experience resulting in the specific arrangement or selection of the database	- Reproduction - making available to the public of (quantitative and qualitative) parts of the database	- Works by authorities - private use - citations	Author

Database protection of research data in the Netherlands					
Type of data	Protection	Criteria	Protection against	Exceptions	Right holder
Collection of works, data or other independent items	Possible	- Individual traceability of independent items-- a substantial investment in obtaining, verifying or presenting the items	- Retrieving (extraction) of 1) substantial parts or 2) systematically or repeatedly retrieving non-substantial parts - reutilization of a substantial part	- Government databases - scientific, scholarly research	Producer (investor: natural person or legal entity responsible for the collection)

Non-original writings' protection of research data in the Netherlands					
Type of data	Protection	Criteria	Protection against	Exceptions	Right holder
Any 'writings', analogue or digital	Possible	- No oc+ps apply - writings made available to the public or - intended to be made available to the public	- Verbatim copying - copying with very limited changes	Non-original writings by authorities	Creator

3.1.2 Denmark

Copyright protection of research data in Denmark						
Type of data	Protection	Criteria	Protection Against	Exceptions	Right holder	Note
Raw data	Unlikely, No protection of facts	Original literary or artistic work	- Reproduction - making available to the public	- Legislation - citation - private copy - use regulated by extended collective rights licences	Author	
Maps, diagrams	Possible	Originality	- Reproduction - making available to the public	- Legislation - citation - private copy - use regulated by extended collective rights licences	Author	
Photos	Possible but unlikely for photos made for research purposes	Originality	- Reproduction - making available to the public	- Legislation - citation - private copy - use regulated by extended collective rights licences	Author	Protection as photographic pictures (neighbouring rights)
Composite works	Possible	Originality in arrangement or selection	- Reproduction - making available to the public	- Legislation - citation - private copy - use regulated by extended collective rights licences	Author	
Databases	Possible	Originality in arrangement or selection	- Reproduction - making available to the public	- Legislation - citation - private copy <i>excluding digital copy</i> - use regulated by extended collective rights licences	Author	

Database protection of research data in Denmark					
Type of data	Protection	Criteria	Protection against	Exceptions	Right holder
Collection of independent items: data (figures, codes, texts etc.) or works of which the independent items are traceable	Possible	Substantial investment in the creation of the database	- Reproduction - making available to the public (extraction and reutilization)	- Legislation - citation - private copy <i>excluding digital copy</i> - use regulated by extended collective rights licences	Natural person/legal entity responsible for the collection (investor)

Catalogue protection of research data in Denmark					
Type of data	Protection	Criteria	Protection against	Exceptions	Right holder
Systematic collections, e.g. data (figures, codes, texts etc.), and tables	Possible, but not for collections which may be defined as databases without fulfilling the requirement of a substantial investment	- Substantial amount of information <i>or</i> substantial investment	- Reproduction - making available to the public	- Legislation - citation - private copy - use regulated by extended collective rights licences	Natural person/legal entity responsible for the collection (investor)

3.1.3 Germany

Copyright protection of research data in Germany					
Type of data	Protection	Criteria	Protection Against	Exceptions	Right holder
Raw data	Unlikely, no protection for bare facts	Originality and individuality	- Reproduction - making available to the public	- Use of works made by the authorities - citations - private copy	Author
Maps, diagrams	Possible	Originality and individuality	- Reproduction - making available to the public	-Use of works made by the authorities - citations - private copy	Author
Composite work	Possible	Originality and individuality	- Reproduction - making available to the public	- Use of works made by the authorities - citations - private copy	Author
Databases	Possible	Originality (in arrangement or selection) and individuality (by choices in included data)	- Reproduction - making available to the public	-Use of works made by the authorities - citations - private copy	Author

Database protection of research data in Germany					
Type of data	Protection	Criteria	Protection against	Exceptions	Right holder
Collection of independent items, data (e.g. figures, codes, texts etc.) or works	Possible	<ul style="list-style-type: none"> - Systematic or methodical arrangement of items - individual traceability of independent items - substantial investment in creating the database 	<ul style="list-style-type: none"> - Reproduction of the database or a substantial portion thereof - systematic and repeated reproductions of non-substantial portions of a database - communication of the database to the public - distribution of the database 	<p>Only for the copying of <i>substantial portions</i> of databases which have been <i>made available</i>:</p> <ul style="list-style-type: none"> - private use - personal scientific research - illustration for teaching - use in (arbitration) court proceedings or proceedings involving the authorities and for purposes of public safety 	Natural person/legal entity making the substantial investment (bearing the risk of investment)

3.1.4 United Kingdom

Copyright protection of research data in the United Kingdom						
Type of data	Protection	Criteria	Protection Against	Exceptions	Right holder	Note
Raw data	Possible, yet no protection for facts	Original literary or artistic work (modest requirement of skill, judgment and labour)	- Reproduction - distribution - publication	Fair dealing: private and non-commercial research purposes, educational purposes, criticism and news reporting, libraries and archives	Creator/ Employer (if made in the course of employment)	Specific copyright protection for certain public official documents (crown and parliamentary copyright) Related rights protection for computer-generated works and typographical arrangement of published editions
Maps, diagrams, tables	Possible	Originality (modest requirement of skill, judgment and labour)	- Reproduction - distribution - publication	Fair dealing: private and non-commercial research purposes, educational purposes, criticism and news reporting, libraries and archives	Creator/ Employer (if made in the course of employment)	
Photos	Possible	Originality (modest requirement of skill, judgment and labour)	- Reproduction - distribution - publication	Fair dealing: private and non-commercial research purposes, educational purposes, criticism and news reporting, libraries and archives	Creator/ employer (if made in the course of employment)	
Compilations	Possible	Originality (modest requirement of skill, judgment	- Reproduction - distribution - publication	Fair dealing: private and non-commercial research purposes, educational	Creator/ employer (if made in the course of	

		and labour)		purposes, criticism and news reporting, libraries and archives	employment)	
Databases	Possible	Originality in arrangement or selection (the author's own intellectual creation)	- Reproduction - distribution - publication	Fair dealing: private and non-commercial research purposes, educational purposes, criticism and news reporting, libraries and archives	Author/ employer (if made in the course of employment)	

Database protection of research data in the United Kingdom

Type of data	Protection	Criteria	Protection against	Exceptions	Right holder
Collection of independent items, e.g. data (figures, codes, texts etc.) or works of which the independent items are traceable	Possible	Substantial investment in the database itself (not including the investment in creating the data)	Extraction and reutilization	Narrow exceptions for lawful users in non-commercial research and for educational purposes	Creator of the database

3.1 Open access use of IP-protected data

This section lists what use of research data is freely allowed in which KE partner country. It gives a practical insight into the open access situation of research data. The section numbers in the second column refer to the sections in the corresponding country report (see: annexes 1-4).

3.2.1 The Netherlands

In what way do you want to use existing data?	What is required?
To copy bare facts and put them in a personal context.	No consent is required: bare facts are not protected by intellectual property rights (section 2.1.2.)
To make a copy of data for your own use.	No consent is required for copyright-protected works due to a copyright law exception (section 2.3.5.).
To put data into a personal database/archive without sharing it with anyone else besides your own research team.	No consent is required for copyright-protected works due to a copyright law exception (section 2.3.5.). No consent is required for substantial portions of protected databases due to a database law exception (section 3.2.5.).
To cite data.	No consent is required due to a copyright law exception (section 2.3.4.).
To copy or make available data made by the authorities (e.g. laws).	No consent is needed due to a copyright law exception unless protection is explicitly stipulated in the work concerned (section 2.3.3.). No consent is required due to a database law exception unless protection is explicitly stipulated (section 3.2.6.).
To copy a non-substantial portion of a database.	Only allowed without consent if the portion is quantitatively and qualitatively insignificant (section 3.2.1. and 3.2.3.).
To make existing data available to persons other than your research team (including publishing).	Check whether the data are protected by: <u>Copyright:</u> Assess whether the data have an original character of their own as well as a personal stamp or feature of the maker. → If this is the case copyright law applies and

	<p>consent from the right holder is required for this kind of use (section 2.2.2.).</p> <p><u>Database right:</u> Assess whether the database is systematically or methodically arranged, the pieces of data in the database can be individually traced and the creation of the database has required a substantial investment. → If this is the case the database right applies and consent from the database producer is required for this kind of use (section 3.2.2.).</p> <p><u>Non-original writings:</u> Assess whether the writing (which is not protected by copyright or the database right) has been published or is intended for publication. → If this is the case non-original writings' protection applies and consent from the right holder is required for making the work available in full (chapter 4).</p>
To copy data.	<p>Check whether data is protected (see above).</p> <p>Consent is required for</p> <ul style="list-style-type: none"> - copying copyright-protected data (section 2.2.2.) - copying a database right-protected database entirely or a substantial portion thereof (3.2.1.) - copying data protected by non-original writings protection in full (section 4.2.).

3.2.2 Denmark

In what way do you want to use existing data?	What is required?
To copy bare facts and put them in a personal context.	No consent is required: bare facts are not protected by intellectual property rights (section 2 and 2.6.)
To make a copy of data for your own use.	<p>No consent is required for copyright-protected works due to a copyright law exception (section 2.3.5.).</p> <p>No consent is required for catalogue-protected works due to a catalogue law exception (section 4.1.2.).</p> <p>Consent is required for copying an entire protected database or a substantial part thereof according to the database right (section 3.2.1.).</p>
To put data into a personal database/archive without sharing it with anyone else besides your own research team.	<p>No consent is required for copyright-protected works due to a copyright law exception (section 2.3.5.).</p> <p>No consent is required for catalogue-protected works due to a catalogue law exception (section 4.1.2.).</p> <p>Consent is required for copying an entire protected database or a substantial part thereof for personal archiving according to the database right (section 3.2.1.).</p>
To cite data.	No consent is required due to a copyright law exception (section 2.3.4.).
To copy or make available data made by the authorities (e.g. laws).	<p>No consent is needed for data which have a certain normative binding character (the data create legal rights or duties) due to a copyright law exception (section 2.3.3.).</p> <p>No consent is needed for government databases which are not copyright-protected; these are also not protected by the database right (section 3.2.3.).</p> <p>The rules concerning databases are generally also applicable to catalogue-protected data. Government</p>

	catalogues do not however exist in practice, thereby making catalogue protection irrelevant for this type of use.
To copy a non-substantial portion of a database or catalogue.	Only allowed without consent if the portion is quantitatively and qualitatively insignificant and the copying is not done systematically and repeatedly (section 3.2.1.).
To make existing data available to persons other than your research team (including publishing).	<p>Check whether the data is protected by:</p> <p><u>Copyright:</u> Assess whether the data have an original character as well as a personal feature. → If this is the case copyright law applies and consent from the right holder is required for this kind of use (section 2.2.2).</p> <p><u>Database right:</u> Assess whether the database is systematically or methodically arranged, the pieces of data in the database can be individually traced and the creation of the database has required a substantial investment. → If this is the case the database right applies and consent from the database producer is required for this kind of use (section 3.1.).</p> <p><u>Catalogue protection:</u> Assess whether the collection of data (which does not comply with the criteria for protection by the database right) is organized systematically and contains a substantial amount of information or is the result of a substantial investment. → If this is the case catalogue protection applies and consent is required from the right holder for this kind of use (section 4.1.1.).</p>
To copy data.	<p>Check whether data are protected (see above).</p> <p>Consent is required for copying copyright-protected data and for copying a database right-protected or catalogue right-protected database or catalogue entirely or a substantial portion thereof.</p>

3.2.3 Germany

In what way do you want to use existing data?	What is required?
To copy bare facts and put them in a personal context.	No consent is required: bare facts are not protected by intellectual property rights (section 3.1).
To make a copy of data for you own use.	No consent is required for copyright-protected works due to a copyright law exception (section 3.3.5). No consent is required for substantial portions of protected databases which have been made available due to a database law exception (section 4.2.5.1.).
To put data into a personal database/archive without sharing it with anyone else besides your own research team.	No consent is required for copyright-protected works due to a copyright law exception (section 3.3.5). No consent is required for substantial portions of protected databases which have been made available due to a database law exception (section 4.2.5.2.).
To cite data.	No consent is required due to a copyright law exception (section 3.3.4.).
To copy or make available data made by the authorities (e.g. laws).	No consent is needed due to a copyright law exception (section 3.3.3.). The exception does not apply to <i>databases</i> created by the authorities.
To use a database in teaching.	No consent is required due to a database law exception (section 4.2.5.3.).
To copy a non-substantial portion of a database.	Only allowed without consent if the portion is quantitatively and qualitatively insignificant (section 4.2.1 and 4.2.3).
To make existing data available to persons other than your research team (including publishing).	Check whether the data is protected by: <u>Copyright:</u> Assess whether the data have an original character (intellectual creation) as well as a personal feature (individuality). → If this is the case copyright law applies and consent from the right holder is required for this kind of use (section 3.2.2) <u>Database right:</u> Assess whether the database is systematically or

	methodically arranged, the pieces of data in the database can be individually traced and the creation of the database has required a substantial investment. →If this is the case the database right applies and consent from the database producer is required for this kind of use (section 4.1.).
To copy data.	Check whether the data are protected (see above). Consent is required for copying copyright-protected data and for copying a database right-protected database entirely or a substantial portion thereof.

3.2.4 The UK

In what way do you want to use existing data?	What is required?
To copy bare facts and put them in a personal context.	No consent is required: bare facts are not protected by intellectual property rights.
To make a copy of data for you own use.	Consent is required for copyright-protected works; under the fair dealing exception in relation to private study, it may be acceptable to make a single photocopy but not a digital copy. Consent is required for protected databases; the fair dealing exception does not include a photocopy of all elements of the database or a digital copy.
To put data into a personal database/archive without sharing it with anyone else besides your own research team.	Consent is required for copyright-protected works; the fair dealing exception in relation to non-commercial research may apply but does not include a digital copy. Consent is required for substantial portions of protected databases.
To cite data.	No consent is required in relation to insubstantial taking and/or due to the copyright law exception of fair dealing (private and non-commercial research purposes).
To copy or make available data made by the authorities (e.g., laws).	Consent is generally required since some official documents enjoy specific copyright protection (crown and parliamentary copyright) or may be protected by copyright as works. Copyright on judgments is generally not asserted. Reporting from such works and copying facts is allowed. The documents may also be encompassed by an "open government licence" whereby copying, publishing and distribution are allowed (with proper acknowledgement).
To use a database in teaching.	No consent is required due to a database law exception.
To copy a non-substantial portion of a database.	Only allowed without consent if the portion is quantitatively and qualitatively insignificant.
To make existing data available to persons other than your research team (including publishing).	Check whether the data are protected by: <u>Copyright:</u> Assess whether the data have an original character (skill, judgment and labour if this is the case copyright law applies and consent from the right holder is required for this kind of use. <u>Database right:</u> Assess whether the database is systematically or methodically arranged, the pieces of data in the database are individually accessible and the creation of the database has required a substantial investment if this is the case, the database right applies and consent from the database producer is required for this kind of use.

To copy data.

Check whether data are protected (see above).

Consent is required for copying copyright-protected data (more than a single photocopy when a fair dealing exception applies) and for copying a database right-protected database entirely or a substantial portion thereof.

3.2 Similarities and differences in the protection of research data

This section provides an overview of the similarities and differences in intellectual property protection for research data in the KE partner countries: the Netherlands, Denmark, Germany and the United Kingdom.

It is important to note that none of the intellectual property regimes of the four member countries allow for the protection of bare facts (research data). The incorporation of such factual data in one's own words and in a structure of one's own is allowed in all KE partner countries although more caution is necessary with respect to UK law. Intellectual property protection, if any, will only apply to the particular form in which the data are recorded and presented. That form may consist of the phrasing or audiovisual depiction of the data, the structure in which the data are put, or a particular selection of data.

However, even if data themselves are free and may be reproduced in one's own words, selection or structure, IP protection can be an obstacle to achieving open access to research data. Open access to data requires that the full data files, including their form, be published in an online repository. Furthermore, the data files must be allowed to be downloaded (i.e. copied), modified and reused by other scientists. These acts all require the consent of the right holder. So even if IP protection is unlikely and limited in scope, the mere possibility of its applicability in the field of research data implies that it requires serious consideration in any open access policy.

3.3.1 Copyright

Research data may be protected by copyright if they have been processed in such a way that they constitute an original work of authorship. Since the originality criterion is not harmonized in European law, its interpretation differs. However, we may point to some general similarities and differences. On the one hand, the continental copyright systems in the Netherlands, Denmark and Germany all require a creative effort and individuality. Here, copyright (locally known as the 'author's right') protects the individual creativity of the author. UK copyright, by contrast, is predicated on the much lower test of 'skill, judgment and labour'. This reflects the historical fact that copyright in the UK is much more a matter of protecting the investment and effort that were required to produce a work than the individual creativity that it displays.

Full protection of (collections of) research data is most likely to be granted in the UK. The UK has a very low originality standard for copyright protection. However, the lower threshold is balanced by the fair dealing exception that is unique to the English copyright tradition. Fair dealing contains many specific exceptions, including the use of copyright-protected works for non-commercial research purposes, criticism and news reporting. It is noteworthy that fair

dealing does not give a right to make a copy (a photocopy or digital copy) for private and research purposes.

The three continental systems adopt a civil law approach to copyright, implying a higher threshold for copyright protection. The material should have “an original character and its own personal stamp of the author” (the Netherlands), “originality” (Denmark) or “originality and individuality” (Germany). This makes the protection of (collections of) personal data under full copyright rather unlikely.

It is important to note that databases or other types of data collections can be protected by copyright in all KE partner countries if they are original in their arrangement and selection of data. Again, the UK criterion of originality is much less exacting than the criteria in the continental systems.

Maps, diagrams and tables can be protected by each of the countries’ copyright regimes if they meet the originality criterion. These types of data are most eligible for copyright protection in the UK.

Images, including photographs, can constitute copyright-protected research data. However, if these are shaped entirely to create a technical or functional optimum, full copyright protection is unlikely in Denmark, Germany and the Netherlands. The technical nature of the choices made in creating the imagery is unlikely to meet the test of creativity and individuality. Given the low threshold of skill, judgment and labour in the UK, images are more likely to enjoy copyright protection in this country, even if they are created largely or exclusively by technical or functional standards and considerations.

3.3.2 Database right

Due to the harmonizing effect of the European Database Directive, all four KE partner countries have a specific protection regime in place for non-original databases. The collection of works, data or other independent items that are individually traceable and show a substantial investment in obtaining, verifying or presenting the items are protected against extraction (reproduction) and reutilization (making available to the public). The requirement of substantial investment is an important obstacle to the protection of databases of research data. According to the case law of the European Court of Justice, the substantial investment should be made for the gathering, verification and presentation of the elements that constitute the database. The investment can only concern elements that already ‘exist’. Investments made in obtaining information included in the database (for instance, by conducting the research from which the information arises) are not taken into consideration in determining who has made a substantial investment. However, a substantial investment in research

databases is not entirely impossible. It is possible that substantial investments are made in the further selection of data or preparing data for presentation in a database.

In the Netherlands, government databases are exempt from protection under the database regime. This is also true for Denmark for government databases that contain documents which are not covered by copyright (normative binding sources creating rights and duties such as legislative acts, regulations and case law). There is no general exception in the UK, where government sources are also generally covered by copyright. Non-commercial scientific and scholarly research is allowed in the Netherlands, in the UK (however, excluding making digital or analogue copies), in Germany (strictly non-commercial) and in Denmark if covered by an extended collective rights licence dictated by law (excluding the right to make a digital copy of the entire database).

3.3.3 Other forms of intellectual property protection for research data

Denmark and the Netherlands are unique in the sense that they have a sui generis regime for the protection of lists of data that do not meet the originality criterion. The catalogue rule (Denmark) and protection of non-original writings (the Netherlands) both provide protection apart from the copyright and database regimes, and apply even if there is no originality, individuality or substantial investment.

The Dutch regime provides protection against verbatim copying or copying with very limited changes for any “writings”, both analogue and digital, as long as they are made available to the public or are intended to be made available to the public.

The Danish regime provides protection against reproduction and making available of collections of data (figures, codes, text etc.) and tables, under the condition that they contain a substantial amount of information or are the result of a substantial investment. Collections that meet all the criteria for a database save for the substantial investment criterion cannot be protected by the catalogue rule.

4 Summary of the main hindrances to improved access to research data from a legal perspective

The purpose of this report has been to identify *legal* flaws in and hindrances to accessing research data and to single out any preconditions for openly available data in view of the current discussions concerning open access to research data, especially those originating from publicly-funded research.

4.1 Copyright, database right and other intellectual property protection

It can be concluded that the copyright regime generally forms a relatively minor hindrance to accessing particular research data. Most research data will fail to meet the criteria for protection. Research data are not likely to be considered as “works” and thereby to be copyright-protected because they mainly concern facts. However, the lack of harmonization of the criteria for copyright protection in Europe might form a hindrance to trans-European access to research data. Whereas the continental KE partner countries have a relatively similar (higher) originality standard, the UK has a very low standard (*skill, judgment and labour*) making it possible that collections of research data are easily granted full copyright protection. Furthermore, UK law does not allow the making of a digital copy for research purposes. As a consequence, data that are free from protection in the continental countries may enjoy copyright protection in the UK, so that consent is required for sharing and reusing the data in the UK.

If protection applies, the right holder’s consent is required for sharing the data. However, the designation of the copyright owner is different in all of the jurisdictions. Although in many cases the maker of the work will be considered to be author and therefore the right holder, only Dutch and UK law designate the employer as the right holder if the work was made in the course of employment. Authors are usually free to transfer their rights to a third party, but German law prohibits such transfers.

In the Netherlands, Denmark and Germany, collections of data or copyrighted works (such as photographs) can be protected by copyright if there is an *original arrangement or selection* by the author. Such an arrangement or selection is not likely to occur in collections of research data, since they are likely to be complete in the sense that they contain all relevant data (measurements, samples, information etc.). This means that no selection will have taken place. The arrangement of the data is also unlikely to qualify for copyright protection, as it will be largely determined by functional and objective standards, leaving little or no room for individual and creative choices. Copyright protection of data collections will only apply in the rare cases where the data were selected and arranged in a manner that meets the criteria of originality.

Complete collections of research data that do not fulfill the originality criterion can be protected by the European sui generis regime of database protection. While most research collections will meet the definition of a database, they are not all likely to qualify for database protection because they often lack a “substantial investment” in the gathering, verification and presentation of the data elements (rather than in the creation of these elements through research).

The Dutch protection of non-original writings and the Danish catalogue rule could potentially hinder open access to listings of raw data. These sui generis regimes provide, alongside the database protection with its origin in the European Database Directive, protection for lists of data lacking originality.

However, there are convincing arguments that these specific regimes violate European law in the situation where the listing/catalogue is a database in the sense of the European Database Directive without qualifying for protection typically because there has not been a “substantial investment”. Such a listing/catalogue should not be protected as a non-original writing or catalogue because the European Database Directive implies a total harmonization of protection for collections that are databases in the sense of the directive.¹²

Some differences in the implementation of the European Database Directive may also form obstacles to the trans-European sharing of research data. In Article 9 of the Directive, exceptions to the database right are listed. These exceptions can only be applied to available databases:

‘Member States may stipulate that lawful users of a database which is made available to the public in whatever manner may, without the authorization of its maker, extract or reutilize a substantial part of its contents:

- (a) in the case of extraction for private purposes of the contents of a non-electronic database;
- (b) in the case of extraction for the purposes of illustration for teaching or scientific research, as long as the source is indicated and to the extent justified by the non-commercial purpose to be achieved;
- (c) in the case of extraction and/or re-utilization for the purposes of public security or an administrative or judicial procedure.’ (European Database Directive)

Since Member States are free to implement these exceptions, the legal regimes differ between the KE partner countries. Therefore, it must be concluded that IP rights can amount to hindrances to the implementation of open access to research data. If data are

¹² As assumed by the Danish Maritime and Commercial Court in UFR 2006.1564SH, *Ofir* (see annex 2: Denmark, section 4.1.1.).

protected, consent is required for making them available, reproducing them and reusing them. Exceptions may apply for research purposes. However, the criteria for protection diverge, so that particular data sets may be unprotected and free to share in one country but protected by IPRs in another. The exceptions to protection regimes also differ, so that consent may be required in one country but not in another. And, finally, the designation of the right holder differs between the KE partner countries. As a consequence, the entity that has to grant consent if protection applies may be different between the countries.

4.2 Factual monopolies

It should be stressed that even if no intellectual property protection applies, there is a risk that research data are subject to factual monopolies. The fact that data fall within the 'public domain' and are not protected by any IP regime does not mean that their creators, or the people who possess them, are required to give them to any other party. Data files are usually stored on the computer of an individual researcher, meaning that he or she is in a position to determine access. Even if data are not protected, it is up to those who have the data in their possession to grant access to others. They may choose to grant access under strict contractual conditions only. For instance, the recipient of the data may have to agree not to distribute, publish or reuse the data. If such conditions apply, IP protection is *de facto* extended to facts and information.

The effect of contractual agreements differs from IP rights. Contractual terms apply between parties only and do not bind third parties, so that no other person can be constrained from reusing data that are protected by contract only. But the risk here is one of creating factual monopolies by controlling access to unprotected data. If access is indeed restricted to those who agree to the contractual terms, the data cannot be shared freely.

Researchers may be particularly reluctant to share data if they consider them to be commercially valuable, or if the research was financed in part by a commercial party that would like to exploit the data for profit.

Contractual agreements are possible in all KE partner countries and funding agencies would therefore do well to decide on clear arrangements concerning access and restrictions of access to research data.

4.3 Other possible hindrances

The regulation of personal data may furthermore constitute a serious hindrance to open access to research data unless anonymized data are used. This topic is outside the scope of this research.

4.4 Practical initiatives for open access to research data

In this respect we can positively refer to the exchange of research data via a third party that acts as an intermediary. In the Netherlands, for example, “DANS” (Data Archiving and Networked Services) currently provides a website where researchers can upload data, allowing other researchers to download such data. Certain contractual arrangements can be made when supplying research data to the intermediary, for example that the intermediary may make the data available to third parties regardless of whether such material is subject to copyright or the database right (if protection applies, the uploader stipulates that consent is given). It can also be stipulated that the data must not be made available to third parties, or only under certain conditions.

The fact that the data are made available via an intermediary does not mean that the author is also waiving the copyright or database right that may apply to the data. If consent is required for the data to be used, it will be necessary to contact the author. This is only different if the author has already given consent in advance for certain actions, for example by including a Creative Commons licence. In some cases, the author of a protected work indicates in advance that he will grant consent for certain actions. He may do this by attaching a statement to that effect to the work, or issuing a licence to any potential user to use the work in a certain way. *Creative Commons* licences are the most popular standard. Authors can choose from a number of different licences that contain particular conditions. The use of such standard licences allows users to see at a glance what use of the work is permitted. Contacting the author to negotiate on consent is no longer needed.

Example

Creative Commons licences allow authors to make all kinds of works available – texts, photos, music, films, etc. – subject to licence conditions that they determine independently to suit their particular situation. The licences are available in a number of different versions and allow copyright-protected works to be made available subject to various different conditions: attribution required and/or no commercial use and/or no adaptations permitted (“share-a-like”) or adaptations permitted but with further distribution subject to the same conditions. In addition, the author can require payment to be made for the commercial use of his work. The licence conditions can be easily drawn up by using the licence tool provided by the Creative Commons organization; this was adapted last year to bring it into line with Dutch law.

A wide range of different licences are available on the websites www.creativecommons.org.¹³
The most liberal of the Creative Commons licences, the “Creative Commons Attribution 3.0 Licence” creates the fewest obstacles possible to the future use of repositories including research data. The Creative Commons Attribution 3.0 Licence allows users to copy and distribute subject to the attribution of the work to its author.¹⁴

¹³ M. de Cock Buning, 'Creative Commons-licenties in het auteursrecht: common sense?' in J.J. Brinkhof, M. de Cock Buning and E.H. Hondius (eds.), *Contracteren internationaal*, The Hague: Boom Juridische uitgevers 2006.

¹⁴ P. Keller and W. Mossink, *Hergebruik van materiaal in onderwijs- en onderzoekomgevingen*, SURFdirect, Utrecht 2009.

5 Synthesis

5.1 European perspective

An awareness of the importance and future benefits of open access to research information has existed for many years at the European level. During these years many consultations, meetings and knowledge-sharing sessions have been held which have led to an extensive amount of policy documents, projects and pilot schemes.¹⁵ The European initiatives are however primarily focussed on open access to research *publications*. Progress on an European approach to open access to research publications has been made by the ‘Open Access Pilot’¹⁶ and the ‘OpenAIRE project’¹⁷ which have led to the existence of a European infrastructure for research publications. Given these developments with respect to research publications, attention to open access to *research data* is a logical consequence. Clear arrangements on access to research data would greatly contribute to the goal behind the initiated projects concerning open access to research publications (knowledge expansion) and provide a positive impetus to research across the European Union.

With regard to access to data produced by the authorities, the European Directive on Public Sector Information (hereafter: the PSI Directive) is already in place. The assessment of the implementation of the PSI Directive shows that the potential of the Directive has not been reached in multiple member states; public sector bodies attempt to maximise cost recovery, there is competition between the public and the private sector and there are still practical issues which hinder reuse (such as the lack of information on available PSI). The Commission has urged the member states to make efforts to fully implement the Directive. Public authorities play an important role in accessing public sector information.¹⁸

5.2 Recommendations

5.2.1 Introduction

Knowledge Exchange has asked for recommendations to improve the legal conditions for open access to research data. The question is posed whether there is an urgent need to take action in the field of IP law, and, if so, what form that action might take.

We have identified a number of potential obstacles that should be resolved to ensure open access to research data. Our comparison has shown that intellectual property rights may, under specific conditions and to a limited extent, apply to research data. It is true that the data themselves constitute factual information and are therefore free to be used by anyone. IP

¹⁵ For an overview of initiated open access projects see: <http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1302&lang=1> (July 2011).

¹⁶ The so-called ‘Open Access Pilot in the Seventh Framework Programme’ was launched by the Commission in August 2008 and runs until end of FP7 in 2013. The pilot scheme intends to provide researchers and other members of the public with improved online access to EU-funded research results.

¹⁷ The OpenAIRE project was launched by the Commission in 2010 and runs for three years. Its goal is to establish an open access infrastructure for research in Europe giving researchers and other members of the public free and open access to EU-funded research papers. OpenAIRE also provides a network of open archives which enables free online access to knowledge produced by scientists who have received grants from the FP7 and the ERC.

¹⁸ Communication on the reuse of Public Sector Information – *Review of Directive 2003/98/EC* – COM(2009) 212, p. 10.

rights are not intended to grant monopolies on information which is supposed to be in the public domain. Copyrights and database rights only protect the form in which the information is put. The data can therefore be freely reused, provided that the protected form is not reproduced. However, sharing research data under open access terms often entails the reproduction of the potentially protected form.

Open access to research data has two legally relevant implications if the data (or their form) are protected by IPRs. Firstly, research data are to be distributed to a wide audience through an online repository. To do so, the repository needs permission from the right holder to reproduce and disseminate the data. Secondly, those who acquire the data by retrieving them from a repository should be free to use, modify and further distribute them. This means that the recipient should also have permission from the right holder to reproduce and disseminate the data. Without such permission, open access to research data cannot function properly.

If research data are protected, legal action is needed to allow the data to be shared under open access terms. However, the criteria differ between the jurisdictions that have been included in our research. The possible IP protection of research data implies that legal steps should always be taken to ensure their availability under open access terms. It is worth stressing that research data are not likely to be protected by IP rights. As we have seen, the threshold for protection is usually too high. And even if a protection regime applies, it will usually cover only certain aspects of the form in which the data are put, such as their structure or formatting. However, should protection apply, legal consequences might arise. This should not be interpreted as an absolute or insurmountable obstacle to open access to research data. It merely means that legal action should be taken to ensure that the required permission is granted. Doing so clarifies any uncertainty about possible IP protection.

While obtaining permission would seem to be a simple matter of making contractual arrangements, in practice it is difficult to devise a multi-national solution that does so. Therefore, our first recommendation relates to creating a level playing field between all countries. Our second recommendation is that contractual arrangements should be made to ensure that IP protection does not play a limiting role in sharing and reusing research data. Our third and final recommendation is to clarify the role that commercial interests to withhold publication of research data may play.

5.2.2 First recommendation: harmonising IP law

Despite the European harmonization of copyright law and database protection, differences remain. In the field of copyright law, we have seen that criteria for protection, the designation of the first right holder and the possibilities of licensing differ. The protection of databases has been implemented more uniformly, but a major difference lies in the existence of protection regimes for material that is neither covered by copyrights nor by database rights. While the

removal of these differences alone cannot remove the obstacles that IP law might form to open access to research data, it can offer an important contribution to facilitating it. If a level playing field exists, contractual arrangements can be made to allow multi-territorial licensing of research data.

There are various reasons why the current divergences between intellectual property rights make it difficult to design contractual arrangements for licensing the use and reuse of protected research data in all KE partner countries. Firstly, a brief note on the applicable law is required. If research data are shared between researchers in the various KE partner countries, different intellectual property laws will apply. As a rule of thumb, one might state that the law of the country where a protected work is being used applies. For example, if a Danish researcher uses research data that originated in the Netherlands, e.g. by copying or modifying them on his computer or distributing them to his colleagues, Danish law should be applied to assess the legality of that use. Thus, one has to refer to Danish law to determine whether the work is protected by copyright, database right or any other regime. One should also refer to Danish law to decide whether any exceptions or limitations apply (like those for scientific use). If research data are published in an online repository, the applicable law is not the law of the country where the uploading takes place or where the repository is based, but the law(s) of the country or countries where the work can be accessed. This means that multiple intellectual property laws will apply to sharing research data.

To complicate things, the rules that determine which law is applicable may differ between countries. Within the European Union, only the rules on determining the law which is applicable to determine the legality of any use have been harmonized.¹⁹ The rules to determine the law which is applicable to issues of ownership or the transfer of rights have not been clearly settled and may differ between the KE partner countries. Thus, it may be difficult to determine whether a transfer of ownership of IP rights in the UK would be recognized in Germany, where the transfer of such rights is not allowed.

A first problem of divergent European laws therefore relates to different rules on the applicable law. Due to these differences, it will often be difficult to determine which law will apply. In many cases, multiple laws may apply to one set of research data that is to be used in different countries. Since these applicable laws differ substantially, it is very difficult to draft licence agreements that allow protected research data to be used in different countries. The problem of multi-territorial licensing is widely known and has received academic attention. For example, the Max Planck group on Conflict of Laws in Intellectual Property (CL-IP) has come up with a detailed set of rules that should solve problems relating to the applicable law, especially relating to multi-territorial or online use of material that is protected by intellectual property rights. However, European legislation would be required to ensure that one uniform set of applicable rules of law applies so that multi-territorial licensing is facilitated. That would significantly reduce the obstacles to sharing and reusing research data within Europe.

¹⁹ Regulation (EC) No. 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations (Rome II). This regulation does not apply in Denmark.

Secondly, there are important differences between the substantive intellectual property laws of the KE partner countries regarding the criteria for IP protection. In the UK, the threshold is relatively low and research data are more likely to be protected than in the other partner countries. This leads to the situation that data that are unprotected in the continental countries and may freely be shared there but are copyrighted in the UK and require a licence for sharing and reuse. Conversely, universities in the UK may be reluctant to share their research data as they consider them to be copyright protected, whereas they are considered to fall within the public domain in continental countries. As a general observation, it may be said that lower criteria for copyright protection, as those that apply in the UK, are more likely to lead to factual information being protected by copyright. This state of affairs is likely to obstruct the free flow of information, such as research data, between research institutions in Europe.

A related issue is the existence of protection regimes other than copyrights and database rights. In Denmark and the Netherlands, protection regimes exist for works of writing that are not original and not protected by database rights. The existence of such alternative protection regimes in effect circumvents the high threshold of IP protection by applying protection to material that would otherwise be in the public domain. This may very well apply to collections of factual research data that are not creative and do not constitute a protected database. However, it can very well be argued that such alternative regimes violate European law since these regimes are contrary to the intention of the Database Directive.

Thirdly, the IP laws of the partner countries differ substantially on issues of ownership of copyright.²⁰ UK and Dutch law is more likely to grant first ownership to the employer if the work is made in the course of a labour agreement. In Denmark and Germany, the first owner of the copyright is the natural person (or persons) who created the work, whereas the employer is only given a licence to use the work. This difference is significant. If research data are in some way protected by copyright, a licence is usually needed to be able to share and reuse those data. The licence needs to be obtained from the copyright owner. Differences in ownership increase the difficulty of obtaining such licences for multiple territories.

Finally, the IP laws of the partner countries differ as to the possibilities of licensing. In Germany, copyrights cannot be transferred; the creator will always remain the owner and may only licence others. Similarly, rules may apply to protect copyright owners from agreeing to unfair or unbeneficial commercial licences. For instance, the Dutch legislature is currently considering a new law on copyright contract law. As such rules are not harmonized between the European countries, it is very difficult, if not impossible, to use one standard licence for sharing and reusing research data within Europe.

These problems are exacerbated by the applicability of multiple laws. If protected research data are used in multiple countries (e.g. if they are made available in various countries), the copyright laws of all of those countries will apply, and a licence for each country would be required. Under the present state of affairs, separate licences with different conditions and

²⁰ Ownership of the database right has been harmonized.

with different parties would be required for each country of use. Harmonizing the differences therefore seems to be unavoidable.

A problem that is closely related to harmonization is that of exceptions and limitations to copyright protection. These are important instruments in ensuring that copyright and database rights do not limit the free flow and use of information to an unreasonable degree. They are currently subject to harmonized European rules to the effect that member states may only provide for exceptions and limitations that are included in a closed list.²¹ Our comparison has shown that IP regimes may apply to sets of pure, raw data, limiting the possibilities of sharing them under an open access policy. Although this can generally be said to be undesirable,²² particularly for implementing open access policy, there is nothing in the criteria for IP protection that prevents it. To cancel out the potential effects of IP protection for factual information such as raw research data, it is therefore recommendable to introduce an exception or limitation that would ensure that research data can freely be used for academic purposes.²³ Under such a rule, researchers would be allowed to copy, modify, distribute and/or publish research data without having to ask for permission from the IP right holder or having to pay a fee, allowing full compliance with open access availability. Such a new exception to copyright protection and database protection would have to have a basis in European law. Obviously, the desired effect of the European-wide sharing of research data would only be achieved if the exception would be introduced in the legislation of all EU member states.

European harmonization can take either of two forms. For those areas that are already subject to harmonization, such as copyright law and the protection of databases, the Court of Justice of the EU can determine whether countries have correctly implemented European law. It can also issue binding interpretations on European legal instruments. Thus, the existence of an alternative protection regime besides the database right, such as the protection of unoriginal writings or the catalogue rule, could be challenged as being incompatible with the Database Directive. If the Court of Justice finds incompatibility, the member states are bound to amend their laws. One way of obtaining a ruling from the Court of Justice is by starting a (test) case before a national court and to argue incompatibility with European law. The national court may then refer the question of compatibility to the Court of Justice for a so-called prejudicial ruling.

The second way of harmonization is by European legislation. Lobbying efforts could be made to stimulate the European legislature to further its harmonization in the field of copyright law. EU policy is strongly aware of the open access movement and supports the cause. Many

²¹ Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society, art. 5.

²² Cp Trade related Aspects of Intellectual Property Rights (TRIPS).

²³ B. Hugenholtz, *Auteursrecht op informatie : auteursrechtelijke bescherming van feitelijke gegevens en gegevensverzamelingen in Nederland, de Verenigde Staten en West-Duitsland, een rechtsvergelijkend onderzoek*, Deventer: Kluwer 1989; Hugenholtz argues that information policy is best implemented through the use of exceptions and limitations (rather than by trying to influence the protection criteria, which are of a highly factual nature). He recommends the use of an open norm, a fair use exception that could be applied by the courts on a case-to-case basis and based on more general legislative criteria, rather than a fixed and closed set of specified exceptions and limitations.

statements and policy documents have been issued to stress the need for free and public access both to research publications and to research data.²⁴

One should realise, however, that European law-making in the field of intellectual property law is subject to many opposing interests. Cultural diversity among the legal systems plays an important role. Particularly in the field of copyright law, differences in legal arrangements can often be traced back to culturally embedded ideologies on the foundation, rationale, and role of copyright protection. Only those areas of the law that need to be harmonized for a proper operation of the internal market are addressed by the European legislature. Furthermore, member states are usually given a large degree of freedom to decide how they wish to implement European copyright law. Areas that are less important or too politically and culturally sensitive are not addressed. This is the reason why topics such as the criteria for protection, the designation of the initial right holder, the exceptions and limitations to copyright protection, and the possibilities of licensing have not been harmonized (or not entirely). It might prove difficult to turn the tide. However, many copyright scholars are of the opinion that the harmonization efforts should be improved, and even suggestions of a European copyright code have been made.

5.2.3 Second recommendation: making contractual arrangements

It has already been suggested that contractual arrangements are unavoidable to ensure that research data can be shared and reused freely. Although research data as such constitute factual information and are therefore not susceptible to protection by IP rights, the form in which they are put – their phrasing, depiction (in tables, graphs, pictures, or audio-visual media), structure or selection – may meet the criteria for IP protection, in particular in those countries where the criteria are lower. It remains difficult to predict when particular files of research data are protected. Therefore, it is recommended that licences for sharing and reusing research data should always be obtained from potential rights holders. This ensures that the repository that distributes the data and any researcher that downloads and reuses them cannot be held liable for copyright or database right infringement.

A possible strategy to clear any potential IP rights on research data is to oblige researchers and research institutions to use standardized licences. These licences allow a right holder to grant permission for certain types of use of his work to any potential user. As the standard licence is attached to the work, users do not need to contact the rights holder to negotiate permission. This is an important benefit as it significantly facilitates the free distribution and reuse of works by removing potential IP rights obstacles. Any potential user can rely on the standard licence to determine which uses have been allowed by the rights holder. The use of

²⁴ Open access to and reuse of research data have been addressed in several policy papers and reports. See e.g. the “OECD Principles and Guidelines for Access to Research Data from Public Funding”, “The EUROHORCs and ESF Vision on a Globally Competitive ERA and their Road Map for Actions to Help Build It”, the “Council Conclusions on scientific information in the digital age”, the “Final report of the Blue Ribbon Task Force on Sustainable Digital Preservation and Access”, the “ESFRI roadmap” and “ESFRI – Inspiring Excellence – Research Infrastructures and the Europe 2020 Strategy” and the Final Report of the High Level Expert Group on Scientific Data “Riding the Wave: How Europe can gain from the rising tide of scientific data”..

standard licences has become common in the field of open access to research publications, where Creative Commons licences are particularly popular. Creative Commons licences are easy to understand for both rights holders and users by stating a number of clear conditions under which the work may be used. It is up to the right holder to choose his preferred licence terms. Possible terms include that the work may only be used for non-commercial purposes, that the work must always be attributed to the creator, and that the creation of derivative works is not allowed. Similar licences have been developed for the database right.²⁵

Research funding agencies could oblige the recipients of subsidies to make all their research data available under a particular licence, so that open access to those data can be guaranteed. The licence would then give a repository the permission that is needed to be able to make protected material available to the public, and would allow any user to download the data, copy them, modify them, and distribute them further. The Creative Commons group claims that their licences are drafted in such a way that they achieve the desired effects in any jurisdiction, regardless of any differences in contract law that protects right holders against unfair licence terms. That seems to imply that Creative Commons licences could be used even if no harmonization of laws has taken place. However, this conclusion should be qualified. Even with Creative Commons licences, the multi-territorial licensing of research data would remain a complicated affair. As the designation of right holders may differ between countries, it will not always be easy to determine which party should grant the licence.

Moreover, the licences that are currently available are drafted for material that is clearly protected by copyright or database right. If research data are protected at all, the protection will apply to limited aspects of the form in which the data are put, such as their structure, selection or phrasing. Applying copyright or database right licences to data that are wholly or largely unprotected might create the impression that IP protection applies. That impression might dissuade users from using the data, even if they are legally entitled to do so. This applies in particular if restrictive versions of the Creative Commons licence are used, for instance with terms that prohibit further distribution or the creation of derivative works.

A third problem of using standard licences for achieving open access to research data is that they are rather inflexible. A licence is a legal instrument that determines the conditions under which protected works can be used in detailed terms. Such fixed conditions may create obstacles to the reuse of data further down the line. The licence condition that the source of a reused work should always be attributed is a case in point. Complying with such a requirement in the context of sharing and reusing research data can be exceedingly difficult. If reused data are mixed with other data and integrated into a new database, one would be required to indicate the source of every single field of information. The difficulties increase when such mixed databases are further shared and reused, to the extent that a large and detailed stack of attributions would be required to comply with the licence terms. The scientific

²⁵ Examples of standard licences for the use of databases are: the Public Domain Dedication and Licence (PDDL), the Attribution Licence (ODC-By) and the Open Database Licence (ODC-ODbL). The licences are available in full text on <http://opendatacommons.org> (July 2011).

community would probably be better served with flexible and open norms about attribution that do not depend on legal definitions but on academic ethics.

The inflexibility of standard licences is also problematic in the light of the fact that the practice of sharing research data is at the development stage. Fixing the terms and conditions of reusing data by using very specific licences would make it very difficult to modify policies as the development progresses. A change of licence terms at any given moment would only be possible if all rights holders of the data that are already included in a repository are contacted and asked for a new licence with renewed terms and conditions.

We therefore recommend that the terms and conditions for sharing and reusing research data should not be regulated through standard licences. Instead, we recommend that the right holders either waive any potential claim to IP protection for the data or accept a general exception for the use of research data for non-commercial research purposes, resulting in the data being used freely and without fear of legal repercussions by other researchers. The regulation of the *manner in which shared data should be reused* can be dealt within a code of conduct. The code could include norms relating to attribution, admissibility of commercial use, the types of use allowed, etc. Anyone who would like to access a data repository and download data should agree to comply with that code, so it will serve as a contract between a repository and its users resulting in users being liable if they violate the code.

The first benefit of regulating open access to research data through a code of conduct is that it can be changed by the repository at any time. The consent of the suppliers of the data that are already in the repository is not required. This degree of flexibility can be very useful, given that it is currently difficult to foresee which terms and conditions would suit the practice of sharing and reusing data as it will develop in future. The second benefit is that a code of conduct is also flexible in the sense that its terms and conditions can be rather open. They may refer to academic ethics, practices and standards of integrity rather than to narrowly described behaviour. Such open norms could alleviate the difficulties of attributing reused data or determining what types of reuse are allowed.

A waiver of IP rights is not easily achieved in all KE partner countries. Again, the difference between laws, in particular those that protect rights holders against unfair contract terms, may limit the possibilities of waiving all rights. However, Creative Commons has developed a licence that effectively waives all claims to IP protection in any jurisdiction. This so-called CC0 licence²⁶ could be used to achieve full open access to research data.

As a further practical problem, researchers and research institutions may be reluctant to waive their claims to IP protection for research data. They may feel that they are giving up (commercially) valuable assets. However, this is not the case. Copyright and database rights, as well as alternative regimes such as the protection of non-original writings or the catalogue rule, are not meant to protect data. Data constitute factual information and therefore belong to the public domain. They are free to be used by anyone, especially if they are generated through publicly funded research. If copyright and database rights apply at all, they protect

²⁶ The full text of the 'CC0 1.0 Universal (CC0 1.0) Public Domain Dedication licence' is available on <http://creativecommons.org/publicdomain/zero/1.0> (July 2011).

only a very limited aspect of the form in which the data are stored. Therefore, these rights do not protect the valuable information that is included in the data; information cannot be monopolized. If copyright and database rights apply to research data at all, they are nothing more than legal obstacles that should be removed to ensure a free flow of information.²⁷

It should be noted that the need for contractual arrangements to ensure that potentially applicable IP rights (copyright, database right and other regimes) do not hinder the sharing and reuse of research data decreases significantly should an exception or limitation to the use of such data be available. The effect of such an exception or limitation would be to remove any IP protection in the context of academic use. However, as no such rule as yet exists in any of the member states and would not be allowed by the present European Copyright Directive, contractual arrangements are indispensable. The acceptance in a contract of a general exception for the use of research data for non-commercial research purposes could be an alternative. The need for waivers does not apply, of course, to patents. If research data disclose some sort of invention, universities or researchers may apply for patent protection to obtain a monopoly to exploit that invention commercially. Patent protection does not form an obstacle to sharing data. Once the patent has been granted, the data can be freely shared without losing the patent monopoly.

5.2.4 Third Recommendation: clarify the potential role of commercial interests

Research projects that are not exclusively funded from public sources take a special position. If private funders are involved, the principle of open access to publicly funded research data may not apply to its full extent. Private funding agencies may wish to exploit research results, including research data, in order to capitalize on their investment. Sometimes exploitation can be done with the use of patent protection. Then, no conflict with open access policy arises. As long as the research data can be kept secret during the patent application (as one of the requirements for patent protection is that the invention is new and has not yet been published), patent protection does not interfere with sharing and reusing the data on which the invention is based.

Open access to research data may however be hampered if commercial exploitation cannot take place by patents. At times, research data may yield information that does not constitute a patentable invention but is nonetheless of commercial value. Such 'know-how' can only be protected through secrecy. As soon as the know-how is made public, competitors may freely use it, and the competitive advantage is lost. For that reason, commercial co-funders may often wish to demand that research results must be kept secret and may only be published with their consent.

The conflict with open access policies is obvious. Secrecy means that research data cannot be shared with others. At the same time, demanding the full openness of research results may scare private investors, significantly limiting the possibilities of public-private partnerships

²⁷ One might also argue that if any rights of value apply, they ought to belong to the research agency that has funded the research in order for the public to benefit from the results of the investment by public funds.

in scientific research. The OECD has recognized the importance of developing a balanced approach:

'As public/private partnerships in the funding of research and related data production are increasing, balanced public/private arrangements should facilitate broad access to research data where appropriate. The fact that there is private sector involvement in the data collection should not, in itself, be used as a reason to restrict access to the data. Consideration should be given to measures that promote noncommercial access and use while protecting commercial interests, such as delayed or partial release of such data, or the voluntary adoption of licensing mechanisms. Such measures can allow the primary participants to fully exploit the research data without unnecessarily shutting off access.'

OECD Principles and Guidelines for Access to Research Data from Public Funding²⁸

We recommend that public research funding agencies clarify the role that commercial interests may play in co-funded research projects. They should decide whether or not private funders should be allowed to decide that research data be kept secret for the purpose of allowing their commercial exploitation. In deciding on such a policy, it should be kept in mind that contractual stipulations relating to the secrecy of research results may lead to the creation of monopolies on factual information. Information that is not protected by any IP right would be withdrawn from the public domain and could not be reused for further research. Yet the interests of private funders must not be ignored. A balanced approach may, for instance, consist of a prohibition on using shared data for commercial purposes or to arrange that the use of shared data is refrained from for a limited period of time, providing investors with sufficient time for exploitation without harming the academic interest of sharing data.

We also recommend that public funding agencies develop policies on dealing with data supplied by an external party for use in a particular research project. Public-private partnerships do not always involve co-funding. Private partners may also supply data to a research group. There may be good reasons for these private suppliers of data to require that the supplied data be kept secret. They may exploit the data commercially, so that they cannot deliver them unless secrecy has been agreed. The supplied data may also be protected by privacy laws (for instance, if a hospital supplies medical data for research), so that sharing may only be legal if secrecy has been agreed upon.

One could argue that open access policies do not apply to externally supplied data that are not generated by research. A distinction could then be drawn between data as the result of research (and should be shared under open access terms) and data supplied by external parties (and may be subject to secrecy agreements). However, things may be more difficult in practice, as generated and supplied data may be mixed in one database so that a distinction

²⁸ OECD Principles and Guidelines for Access to Research Data from Public Funding 2007, p. 16, 17, available on <http://www.oecd.org/dataoecd/9/61/38500813.pdf> (July 2011).

cannot be made. Public funding agencies should develop clear policies on how open access is to be applied in these situations, and what types of secrecy agreements are permitted.

5.2.5 Summary of the recommendations

1. Lobby for harmonised IP law in Europe to smooth the free flow of research data and allow the multi-territorial licensing of such data
 - a. Clear and harmonised rules on the law which is applicable to issues of ownership and the transfer of rights;
 - b. Harmonised criteria for copyright protection;
 - c. The removal of alternative protection regimes such as the catalogue rule and the protection of unoriginal writings, as it can be argued that these violate the Database Directive;
 - d. The introduction of an exception or limitation that allows research data to be shared and reused for academic purposes;
 - e. Harmonised rules or policy on the first ownership of IP rights in employer-employee relations, especially in academic contexts;
 - f. Harmonised rules on the transfer and licensing of copyrights and database rights.
2. Remove any potential IP rights obstacles to open access to research data
 - a. Oblige both stakeholders and researchers to accept a general exception for the use of such research data for non-commercial research purpose or waive claims to any IP rights that might apply to research data that they generate in the course of publicly funded research;
 - b. Regulate the sharing and reuse of research data through codes of conduct.
3. Clarify the policy on the role of commercial interests of private parties involved in research projects
 - a. Determine whether research results, including research data, may be kept secret to the benefit of private co-funding partners in order to allow them to exploit the results (by means other than patents, and if so, under which conditions);
 - b. Distinguish between research data that were supplied by third parties and data that were generated in the course of the research project, and decide how open access policies should be applied to each category.

List of annexes

This report is based on four separate reports on the legal status of research data in the four Knowledge Exchange partner countries (Netherlands, Denmark, Germany and the United Kingdom).

- Annex 1: The legal status of research data in the Netherlands
- Annex 2: The legal status of research data in Denmark
- Annex 3: The legal status of research data in Germany
- Annex 4: The legal status of research data in the United Kingdom

These four annexes are all available for download on the webpage:
<http://www.knowledge-exchange.info/Default.aspx?ID=461>