Research Data and INSPIRE

An introductory guide for researchers

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University of Bristol

Research Data Service

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University of BRISTOL

INTRODUCTION

The initial roll out of the Infrastructure for Spatial Information in the European Union (INSPIRE) Directive[1] began in 2007; full implementation has been in effect since 2021. INSPIRE aims to unite publicly held information which describes location. The primary motivation is to *"enable the sharing of environmental spatial information among public sector organisations and better facilitate public access to spatial information across Europe".*[2]

INSPIRE aims to unite disparate datasets in order to better understand and manage both the constructed and natural environments.

The spatial information considered under the directive is extensive and includes a wide variety of 'Themes'[3] (reproduced below) ranging from Species Distribution to Addresses.

The definition of 'publicly held' data includes information created by EU governments but increasingly the definition is being broadened to include any publicly-funded dataset which is:

"relevant for developing, implementing or monitoring laws or regulations which may have an impact on the environment… such conditions could equally apply to datasets collected by a research project activity as the INSPIRE Directive makes no distinction between 'operational' and 'research' datasets[4]".

If your research is funded by the Natural Environment Research Council (NERC) you will almost certainly be required by NERC to comply with the INSPIRE Directive. This is usually achieved by depositing research data with an INSPIRE-compliant Data Service at the close of a project.

It is also recommended that valuable environmental data generated by *non-NERC funded activity* should be made INSPIRE-compliant where this is practicable.

Applicability of INSPIRE after Brexit

The INSPIRE regulations still apply since the UK's exit from the EU. The INSPIRE (Amendment) (EU Exit) Regulation 2018[5] statutory instrument amends the original 2007 directive so that it will still apply post-Brexit.

Data Providers and Data Publishers

The UK implementation of INSPIRE[6] introduces the concepts of 'Data Publisher' and 'Data Provider'.

Data Publishers are typically national or international data centres that will provide online services such as; data discovery (helping users to find data), data viewing facilities (displaying spatial datasets, often as maps), download options and transformation tools (to

[1] https://knowledge-base.inspire.ec.europa.eu/index_en
[2] https://knowledge-base.inspire.ec.europa.eu/overview_en
[3] https://knowledge-base.inspire.ec.europa.eu/tools/inspire-themes_en
[4] https://www.ukdataservice.ac.uk/news-and-events/eventsitem/?id=2951
[5] https://www.legislation.gov.uk/uksi/2018/1338/contents
[6] https://publications.jrc.ec.europa.eu/repository/bitstream/JRC109943/jrc109943_studytermsofuseagreementsanduserbarriersinspire.pdf

improve data interoperability, a key concept for the later phases of INSPIRE introduction).

A UK-based Data Publisher will register with data.gov.uk,[7] the keeper of the national catalogue of INSPIRE-compliant data assets.

Due to the associated implications of providing an ongoing service it is recommended that only large-scale and long-lasting research activities consider becoming Data Publishers. If this applies to you, please contact the Research Data Service (data-bris@bristol.ac.uk) to discuss in more detail.

It is expected though that the vast majority of research projects affected by the Directive will instead wish to become Data Providers.

Approaches to INSPIRE compliancy

Each Data Provider must identify a suitable Data Publisher. This will typically be a national or international data centre such as the British Oceanographic Data Centre, the National Geoscience Data Centre, the British Atmospheric Data Centre, NERC Earth Observation Data Centre, the Polar Data Centre, the Environmental Information Data Centre, the UK Solar System Data Centre or the Archaeology Data Service.

These data centres are able to meet the requirements for an INSPIRE Data Publisher. Once you have identified a suitable data centre for your data, you should contact them as soon as possible, as each will have its own requirements for the format of data it is willing to accept and the nature of the documentation (metadata) which must accompany each deposit.

The information provided below is an indication of what you can expect your Data Publisher's metadata requirements to be. Please note that each Data Publisher will have unique requirements (some of which may not be related to INSPIRE) and so the information below is provided only as an indication.

INSPIRE metadata requirements

General information should accompany each dataset and should, where applicable, include:

- Name of Principle Investigator
- Title of dataset
- Abstract
- Language of the dataset
- Keywords
- Name of organisation/s responsible for the establishment, management, maintenance and distribution of dataset

More specific information is typically required to explain both the temporal and geographic extent of a dataset:

- *Geographic Location* – this is expressed as a geographic bounding box with westbound and eastbound longitudes, and southbound and northbound latitudes given in decimal degrees, with a precision of at least two decimals.
- *Temporal Reference* - this may be the temporal extent of the data, its date of creation, last revision, or publication. Temporal extent defines

[7] https://data.gov.uk/publishers

the time period covered by the data. This time period may be an individual date, an interval of dates (expressed as starting date to end date) or a mix of individual dates and date intervals.

The default temporal reference system is the Gregorian calendar; expressed in accordance with the International Standard ISO 8601, but other temporal reference systems are acceptable.

The INSPIRE Theme/s to which the data relates should also be recorded for presentation alongside each dataset (see below).

SUMMARY

Compliance with the INSPIRE Directive may add more work and extra cost to a research activity; on the other hand researchers from a wide range of disciplines are likely to make use of data made interoperable in compliance with the Directive, and therefore safeguard valuable research data sets after the end of a project. Universities are also likely to benefit from easier access to spatial data facilitated by the Directive.

The University of Bristol Research Data Service is happy to work with researchers in order to achieve compliance with the INSPIRE Directive.

INSPIRE Themes

From INSPIRE ANNEX I

1. Addresses
2. Administrative units
3. Cadastral parcels
4. Coordinate reference systems
5. Geographical grid systems
6. Geographical names
7. Hydrography
8. Protected sites
9. Transport networks

From INSPIRE ANNEX II

1. Elevation
2. Geology
3. Land cover
4. Orthoimagery

From INSPIRE ANNEX III

1. Agricultural and aquaculture facilities
2. Area management / restriction / regulation zones & reporting units
3. Atmospheric conditions
4. Bio-geographical regions
5. Buildings
6. Energy Resources
7. Environmental monitoring Facilities
8. Habitats and biotopes
9. Human health and safety
10. Land use
11. Meteorological geographical features
12. Mineral Resources
13. Natural risk zones
14. Oceanographic geographical features
15. Population distribution and demography
16. Production and industrial facilities
17. Sea regions
18. Soil
19. Species distribution
20. Statistical units
21. Utility and governmental services