

UK Location Programme

Location Information Interoperability Board

Design Coordination Group

Design Principles for UKLII

DOCUMENT CONTROL

Change Summary

Version	Date	Author/Editor	Change Summary
0.1	11/01/2011	Ian James	First draft version
0.2	28/01/2011	Ian James	Updated following review by UKLP Design Coordination Group
0.3	02/02/2011	Ian James	Updated following second UKLP Design Coordination Group review
0.4	18/03/2011	Ian James	Updated following LIIB / UKLP / DGU review

References

Ref.	Title/Version/Publication Date/Author
[1]	UK Location Programme / Location Information Interoperability Board / Design Coordination Group / Technical Architecture Overview, v0.3, 15/10/2011 - https://my.huddle.net/workspace/document/12178972?workspaceid=7820584&directoryid=10297623
[2]	UK Location Programme / Conceptual Design / UK Location Information Infrastructure Blueprint, v4.0, 27/11/2009 - https://my.huddle.net/workspace/document/9735228?workspaceid=7820584&directoryid=9701125
[3]	UKLP Position paper on registries, v1.0, 22/12/2010 - https://my.huddle.net/workspace/document/13714490?workspaceid=7820584&directoryid=10185755
[4]	D2.5: INSPIRE Generic Conceptual Model, v3.1, 15/12/2008 - http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.5_v3.1.pdf
[5]	The Re-use of Public Sector Information Regulations 2005 - http://www.legislation.gov.uk/uksi/2005/1515/contents/made

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1 INTRODUCTION

1.1 Purpose

- 1 The purpose of this document is to outline the design principles that have been applied to the design and development of the UK Location Information Infrastructure. See [2] for an overview of the complete infrastructure, and [1] for an outline of the solution being developed for the Central Services.
- 2 These principles refine, support and extend those principles defined in the UK Location Information Infrastructure Blueprint [2], in particular those set out in the Strategic Direction (3), Design Principles (5.1) and System Architecture View Design Principles (5.5) sections.

2 PRINCIPLES – CENTRAL SERVICES

2.1 Metadata discovery delivered through data.gov.uk

- 3 In the spirit of openness and transparency, data.gov.uk has been set-up to provide a one-stop shop for public data. INSPIRE and UK Location Programme (UKLP) are both initiatives aimed at providing easy access to environmental public data. Rather than create a separate portal for accessing geospatial data, this principle acknowledges that in many senses there is nothing special about such data, and that as a result it should be accessed through a common public data portal. This ensures that such data is exposed to a wider audience, and is treated consistently with other public data.

2.2 Central services will not host location information

- 4 The central services provided by the UK Location Information Infrastructure will not include the hosting of location information. Hosting of location information will be the responsibility of data publishers. Only metadata about this location information will be hosted by the central services, although ownership of this metadata will still remain with the data publishers (see 3.1).
- 5 Additionally, all data services (i.e. the ability to discover, view, download and invoke the use of location information) will be provided by the data providers or their publishing agents.

2.3 Minimise the scope of central services

- 6 The central UK Location Information Infrastructure service will only support the minimum functionality required for the effective operation of the Location Information Infrastructure; and the achievement of its business goals.

2.4 Maximise use of existing software solutions

- 7 The solution should not attempt to reinvent the wheel. Rather it should look to make best use of software solutions that are already available and which meet the needs of the programme. Additionally, where a software solution is not currently implemented, prioritisation should be given to the use of off-the-shelf solutions, rather than developing from scratch.
- 8 The proposed solution reuses services from Cabinet Office (data.gov.uk web-site), Open Knowledge Foundation (CKAN) and Ordnance Survey (OpenSpace gazetteer service). Also GeoNetwork is being used to provide the Catalogue Service for the Web (CSW) interface to European Union (EU), rather than developing this functionality from scratch within CKAN.

2.5 Maximise use of open source solutions

- 9 The solution will use open source software wherever possible. This ensures that the solution has benefited (and continues to benefit) from community development. It provides a cost-effective and flexible solution. And it ensures that the solution is one that can be reused by other communities.
- 10 Where open source software needs to be extended to meet UKLII requirements, the intention will be to ensure that as much of this development as possible can be fed back into the core open source product. Any open source software developed will remain non-proprietary, and will be made generally available on open

source terms. This not only ensures that such development is available to others, but also ensures that support and further development of those extensions will be part of the core product development.

- 11 Open Source software is used throughout the solution. The data.gov.uk website is based on an open source content management platform (Drupal). CKAN is an open source catalogue system. The mapping software uses OpenLayers and GeoExt libraries.
- 12 Examples of where open source software development has been made available beyond the programme include GeoNetwork enhancements to support the Metadata Editor, Schematron validation rules for metadata, and the Extensible Stylesheet Language (XSL) style sheets for converting metadata from other standards into GEMINI/ISO 19139.

2.6 Maximise the use of open standards

- 13 The solution will use open standards wherever possible. This will maximise the ability of the system, its data and its interfaces to integrate with other services. It will also maximise the options available in terms of software solutions that might be used to deliver the service.
- 14 As such, the UK Location Information Infrastructure will be designed to be technology agnostic where possible. Support for the agreed open standards will be the defining criteria for inclusion in the technical architecture. For example, spatial data may be stored in any format provided it can be accessed by UK Location Information Infrastructure network services, and transformed where appropriate for access purposes.
- 15 INSPIRE is based on open standards, and so the UKLP Central Services inherit that dependency. Specifically Open Geospatial Consortium (OGC) standards for Catalogue Services for the Web (CSW) and Web Mapping Services (WMS) are used extensively within the solution. Widespread use is made of XML, including an XML implementation of the GEMINI2 metadata standard. Other open standards used in the solution are ISO 19139 and 19119 for metadata, and ISO 19128 for the CSW interface.

2.7 Fit for purpose

- 16 Solutions should avoid over-engineering and should be “fit-for-purpose”. This means ensuring that solutions provide enough capability (both functionally and in terms of the quality of service they provide) to be useful to the intended audience, whilst avoiding introducing complexity and sophistication that is either “nice to have”, or only supports a very limited proportion of the user base.

2.8 Support flexibility and extensibility

- 17 The UK Location Information Infrastructure will be designed to be extensible and flexible, so that functionality can be added and removed as the Location Information Infrastructure community and partner service providers evolve.

3 PRINCIPLES - METADATA

3.1 Metadata ownership is with Data Publishers

- 18 Ownership and responsibility for the maintenance of metadata is with Data Publishers. The Central Services are where the Data Publisher publishes this data to. But it is just a copy – the definitive source (the master) for this metadata is the responsibility of the Data Publisher.

3.2 Only metadata and master data will be held centrally

- 19 The UKLII Central Services are about providing a central point for the discovery of data. Metadata and master data (i.e. catalogues, coordinate reference systems etc.) are required within the Central Services to efficiently support this. However the data itself remains the responsibility of the data publishers. It is they who are required to make that data available, using INSPIRE compliant mechanisms, to end users.
- 20 As an example of this principle, the Central Services registry will not replicate registry data already published by INSPIRE, or contained in ISO standards, but will instead just point link to the definitive sources of this information (see [3] for more details).

4 PRINCIPLES – DATA

4.1 Adopt the Generic Conceptual Model

- 21 When features not covered by the current INSPIRE data specifications are adopted as part of the UKLII, the same general model as used for in-scope INSPIRE data (the INSPIRE Generic Conceptual Model – [4]) will be used. This will maintain interoperability between these features and the core INSPIRE data, as well as allow these features to be put forward as candidate features for formal inclusion by INSPIRE (either as a new feature or feature type).

4.2 Collect once, use many

- 22 Data should be collected only once and then re-used, subject to Re-use of Public Sector Information Regulations [5].

4.3 Capture reference data at highest resolution

- 23 Reference data should be captured at the highest resolution whenever economically possible.

4.4 Re-use of source reference data

- 24 Source reference data should be re-used to meet multi-resolution publishing requirements in a seamless and integrated way (from local to European resolution).

4.5 Data provider responsible for INSPIRE compliance

- 25 The data provider will be responsible for ensuring that they present their metadata to the UK Location Information Infrastructure (via the registration process) in an INSPIRE compliant form.

4.6 Theme owners will work to ensure greater coherence

- 26 The identified owner(s) for each theme/subtheme will work to the agreed thematic roadmap (see [2], section 5.4.5) to ensure greater coherence at all levels of government.