IMPLEMENTING GEMINI 2.3 (ISO19115:2003) AS A GEONETWORK METADATA PROFILE

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Astun are a small firm, with 20 staff. We're based in Epsom, Surrey, but have staff spread across the UK and abroad.
We provide web-based GIS products, services, and training to local authorities, government departments, devolved government, and commercial firms. These include mapping, databases, and metadata portals, all based on an open source geospatial stack.
We provide metadata portals for DEFRA and the Environment Agency, Scottish Government, and a number of local authorities. This involves a lot of training, metadata wrangling, and integration with multiple other services.
While supporting our metadata clients we have developed a plugin for the GEMINI 2.3 Metadata specification for the GeoNetwork catalog.

It's open source, and available at [metadata101](http://metadata101) and [GitHub](https://github) and works with most recent GeoNetwork versions.
Building the plugin, managing these metadata portals, and training people in their use, has given me an insight into some of the compromises that go into implementing a standard, the way people interact with it in real life, and things we can do to ensure a great end result.
#1 IT'S A LONG JOURNEY FROM STANDARD TO PLUGIN

ISO19115:2003 (the standard)
ISO19139:2007 (the XML implementation)
INSPIRE TG:2017 (extends and brings in ISO19119 for services)
GEMINI 2.3 Specification:2018 (clarifications, UK-specific requirements)
GeoNetwork Plugin:2020 (user interface)
By the time we get to GeoNetwork we're a couple of steps removed from the standard, both temporally and conceptually.

Every one of these steps introduces complexity and design decisions, in particular getting towards something people can interact with.
A simple example of this when checking for conformance against a data quality specification. In ISO19115:2003 this is defined as a boolean and hence traditionally displayed in a User Interface using a check box. Checked means a pass result, and unchecked means a fail.
In INSPIRE TG:2017 and Gemini 2.3:2018 a third result is allowed: not evaluated. Simple check boxes can't convey the difference between a fail and "not evaluated" so we have to use a different approach.
#2 THERE'S ANOTHER STEP

ISO19115:2003
ISO19139:2007
INSPIRE TG:2017
GEMINI 2.3 Specification:2018
GeoNetwork Plugin:2020
The User
Very few users have the time and training to refer to the standards documentation when creating metadata. So it's up to the profile plugin to provide them with guidance and utilities to help them do this. Here are a few of those ways...
We've enhanced the GEMINI 2.3 editing interface with snippets about each element, links to the definitive guidance, and buttons for adding complex elements.
We're using the GeoNetwork "suggestions wizard" to allow users to convert GEMINI 2.2 records to GEMINI 2.3, with one click.
We're using another feature called "inflate-metadata" to automatically insert missing or inadvertently deleted mandatory elements.
#3 THERE'S MORE...

Metadata profile plugins can include additional enhancements that are not related to the standard as such, but help with data quality, and discoverability.
A recent UK Geospatial Commission report advised data providers to utilise Search-Engine Optimisation techniques to ensure their datasets are discoverable and "highly ranked", and to include structured data to ensure that search engines can display results in a richer way.
In work funded by the Scottish Government to address these findings, one of the things we've done is to add schema.org structured data tags for metadata records. This is now included in the GEMINI 2.3 Metadata Profile Plugin.
To summarise:

There are a lot of steps between metadata standard and plugin.
These steps all introduce complexities and require implementation decisions.
Profile plugins can be used to enhance the user experience, and make it easier for them to produce high-quality metadata that meets the standard.
THANK YOU!

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