Spatial Data Transformation and GML

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What is a Data Transformation?

- It is a data processing functionality with a primary focus on the ability to manage spatial data.

How is it done?

- It needs input – a mapping table*, data in source data model, target data model, knowledge of both data models.
- Transformation software – FME, snowflake (GoPublisher), ArcGIS for INSPIRE, HALE, application schema plug-in for Geoserver or other.
- It creates an output – data in target data model (INSPIRE).

Why do we need it?

* - optional
Data transformation is part of a much bigger picture...
Data **transformation** vs. data **harmonization**

- Transformation is done when changing a dataset from one version to another (i.e. from a national standard* to INSPIRE).

- Harmonization can be done when you have more than one dataset of *different* data models and you need to work with both of them.

- Harmonization can be done by **transforming** one of them to match the data model of the other.

- The key concept is compatible **data models**.

* Unless a national standard is based on INSPIRE*
The Data Transformation consists of...

Locating the data  
Mapping it  
Transforming it
### Example of transformation (AU lines)

#### INSPIRE

**Mapping table**

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>country</code></td>
<td>-- Name -- country</td>
<td>Two-character country</td>
<td>BE*</td>
</tr>
<tr>
<td><code>beginLifespanVersion</code></td>
<td>-- Name -- begin lifespan version</td>
<td>Date/Time</td>
<td>2014-03-13T00:00:00+00:00</td>
</tr>
<tr>
<td><code>endLifespanVersion</code></td>
<td>-- Name -- end lifespan version</td>
<td>Date/Time</td>
<td>unpopulated</td>
</tr>
</tbody>
</table>

#### EBM

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICC</td>
<td></td>
<td>IS</td>
<td>IS</td>
</tr>
<tr>
<td>beginLifes</td>
<td></td>
<td>13.3.2004</td>
<td>Thu Mar 13 00:00:00 GMT 2014</td>
</tr>
</tbody>
</table>

#### HALE mapping

- Assign: `beginLifes`
- Rename: `beginLifespanVersion`
- Assign: `...nVersion.nilReason`
- Assign: `country.Country`

#### GML

```xml
<au:beginLifespanVersion>2014-03-13T00:00:00+00:00</au:beginLifespanVersion>
<au:endLifespanVersion nilReason="unpopulated" xsi:nil="true"></au:endLifespanVersion>
<au:country>
    <gmd:Country>IS</gmd:Country>
```
Example of HALE mapping (PS)

Source data

Target

HALE Mapping
Why HALE?
Questions...