External references in metadata (e.g. ISO19139)

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Current status in CSR 3

For now some external references are stored with codeList and some others directly stored as text in CharacterString tags or directly as tags or attributes values.

EDMO codes:

```xml
<sdn:SDN_EDMOCodes codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-codelists.xml#SDN_EDMOCodes" codeSpace="SeaDataNet" codeListValue="1">University of Birmingham, Department of Geological Sciences</sdn:SDN_EDMOCodes>
```

Vocabularies list codes

```xml
<gmd:MD_Identifier><gmd:code><gco:CharacterString>http://www.seadatanet.org/urnurl/SDN:P02</gco:CharacterString></gmd:code></gmd:MD_Identifier>
```
Other vocabularies references

Vertical datum:

```xml
<gml:VerticalDatum gml:id="vertical-datum">
  <gml:identifier codeSpace="SeaDataNet">
    http://www.seadatanet.org/urnurl/SDN:L11::D08
  </gml:identifier>
  <gml:name>sea level</gml:name>
  <gml:scope>not known</gml:scope>
</gml:VerticalDatum>
```

External documentation:

```xml
</sdn:additionalDocumentation>
```
Usage of gmx:Anchor

The references to these external directories or thesaurus may be done in a more homogeneous way, by always using the gmx:Anchor tag which enables to store a remote URL (as the external reference) and a label. For example:

```xml
```
How to validate the metadata (against vocabularies references) ?

**Option 1:** strictly check the reference by applying a schematron rule on a SKOS list (e.g. D08 is actually available at http://vocab.ndg.nerc.ac.uk/collection/L11/current/).

**Option 2:** just check the URL in xlink:href status. If it is resolved on the web, this means the reference is ok, otherwise this means the reference does not exists.
How to check option2 in schematron?

Very, very simple rule, easy to check:

```xml
<sch:pattern>
  <sch:title>test remote reference</sch:title>
  <sch:rule
    context="//gmx:Anchor">
    <sch:assert
      test="document(@xlink:href)"
      reference does not exist>
    </sch:assert>
  </sch:rule>
</sch:pattern>
```
How to edit references in metadata (here geonetwork)?

Step 1: upload skos file in geonetwork:
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Step 2: In edition form, select references (1 to many among a long list)
Conclusion

- **Gmx:Anchor** usage looks like a proper way to handle external references in metadata (although it may be discussed, may be not applicable everywhere).
- Would require upgrade of SeaDataNet CSR v3, but we are prototyping, aren't we?
- What about other metadata standards (e.g. SWE)?