To Vector, or to Raster?
Coverage Processing and Publishing for INSPIRE Annex II/III

Thorsten Reitz, wetransform GmbH
Markus Braun, M.O.S.S. Computer Graphik Systeme GmbH
Agenda & Introduction

– Coverages in INSPIRE
– Example: Land Cover
– Integration of Raster and Vector Workflows
– Conclusion
Coverage Themes and Encodings in INSPIRE

II Elevation
- Raster ➔ Vector
- TIN

II Orthoimagery
- Raster

II Land Cover
- Raster ➔ Vector

III Statistical Units
- Grid ➔ Vector

III Energy Resources
- Coverage ➔ Vector

III Species Distribution...
- Raster* ➔ Vector
Example: Land Cover

**Raster**

- LandCoverGridCoverage
  - domainSet
  - location
  - beginLifespanVersion
  - boundedBy
  - coverageFunction
  - description
  - nomenclatureDocumentation
  - rangeSet
    - choice
      - AbstractScalarValueList
      - DataBlock
      - File
        - choice
          - fileName
          - fileReference
          - compression
          - fileStructure
          - mimeType
          - rangeParameters
            - ValueArray
            - rangeType

**Vector**

- LandCoverDataset
- LandCoverUnit
  - location
  - beginLifespanVersion
  - boundedBy
  - description
  - descriptionReference
  - endLifespanVersion
  - geometry
    - id
  - identifier
  - inspireId
  - landCoverObservation
    - LandCoverObservation
      - class
      - mosaic
        - LandCoverValue
          - class
          - coveredPercentage
          - nilReason
          - observationDate
        - metaDataProperty
          - name
Example: Land Cover

Raster

Vector

Geo TIFF

GML

GML
## Criteria for making a selection

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Raster</th>
<th>Vector</th>
</tr>
</thead>
<tbody>
<tr>
<td>What structure does the Source Data have?</td>
<td>Raster Coverage</td>
<td>Vector Coverage</td>
</tr>
<tr>
<td>What data analysis should be executed?</td>
<td>Combination with other raster data</td>
<td>Combination with other vector data</td>
</tr>
<tr>
<td>How compact should the target data be?</td>
<td>Not so compact</td>
<td>Very compact</td>
</tr>
<tr>
<td></td>
<td>Example data set in paletted GeoTIFF LZW 100m Raster: <strong>121 MB</strong></td>
<td>Example data set in GML 1:100.000, Gzipped: <strong>4MB</strong></td>
</tr>
</tbody>
</table>
Bringing both together...

... by integrating novaFACTORY with inspire gis
Data harmonisation projects and service provision are expensive. Often, no personal and financial resources are available.

inspire»gis is the first fully integrated, easy to use solution for the harmonisation and publication of INSPIRE Data

Reduce costs for hosting, application management, training and implementation by 70% to 80%.
novaFACTORY in 3 Points

- Automated Data Production (e.g. 3D) - and Distribution
- Quality Assured preparation of the Data
- Freely definable data-processing workflows
Use Cases

1. Transform and Publish Data Set managed in novaFACTORY

2. Transform and Publish Data Set managed in hale connect

3. Convert between Raster and Vector representation
UCI: Raster managed in existing novaFACTORY Installation

**Preconditions:**

- Data set (Layer) is managed in novaFACTORY
- Integration with token is activated
- Uses is logged in
- No WCS for the dataset in novaFACTORY published
- Theme configured

**Postconditions:**

- WCS published by novaFACTORY (MOSS Cloud)
- WMS published by hale connect (WETR Cloud)
- Metadata generation + integration + publication executed by hale connect
- Service and data validation executed in hale connect
- (Optional) Spatineo Monitoring triggered
UC1: System View

GET /datasets/...

GET /datasets/id/files

POST /datasets/id/wcs

[datasets]

[files]

{publicationLog}

WMS

Testsuite

CSW

Client

WCS

novaFACTORY

hale connect
UC2: Upload & management in hale connect

Preconditions:
- Public Cloud/Private Cloud Setup with active Integration
- Uses is logged in
- Theme configured

Postconditions:
- WCS published by novaFactory (MOSS Cloud)
- WMS published by hale connect (WETR Cloud)
- Metadata generation + integration + publication executed by hale connect
- Service and data validation executed in hale connect
- (Optional) Spatineo Monitoring triggered
Use Case 2: Systemsicht

POST /datasets/ {datasetID}

POST [files] /datasets/id/files {uploadLog}

POST /datasets/id/csw {publicationLog}

hale connect

WMS

Client

CSW

Testsuite

WCS

NovAFACTORY
Summary & Outlook

– Seamless, automated processing and publishing across systems and use cases

– Consistent Metadata
– Consistent Monitoring
– Re-use of existing data sets
– Support both options in parallel for different applications
– Added value beyond INSPIRE
Questions? Feedback?

+49 6151 155 408

info@wetransform.to
www.wetransform.to

www.linkedin.com/company/wetransform-gmbh
https://twitter.com/tr_xsdi