



INSPIRE DATASETS OF ANNEX II & III STATE OF PLAY AT NGI BELGIUM

INSPIREKEN 01/10/2020

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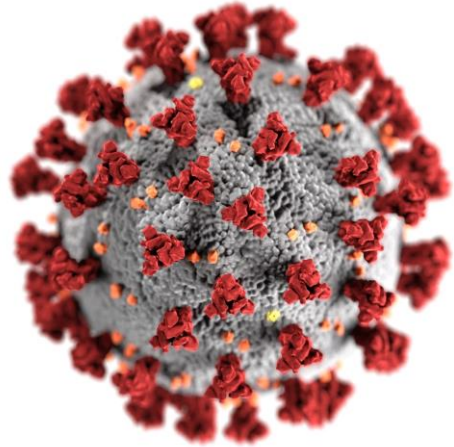
NGI
Nationaal
Geografisch
Instituut



IGN
Institut
Géographique
National

1/10/2020
in Belgium

10 000 deaths



494 days



Agenda

1. Datasets List
2. Main Objective
3. Process Principles
4. State of Play
5. Raster Data
6. Conclusion

1. List of Datasets



INSPIRE theme	NGI features
III. Buildings	CO_Building
	CO_ParticularPolyConstruction
	CO_ParticularPointConstruction
	CO_ParticularLineConstruction
	CO_Brunnel
III. Utility and Government services	HT_HighTensionLineSegment
	HT_PowerPylon
III.Landuse	ZO_ParticularZone

Data sources ITGI Vref (1/10K) restricted access

1. List of Datasets : Landcover

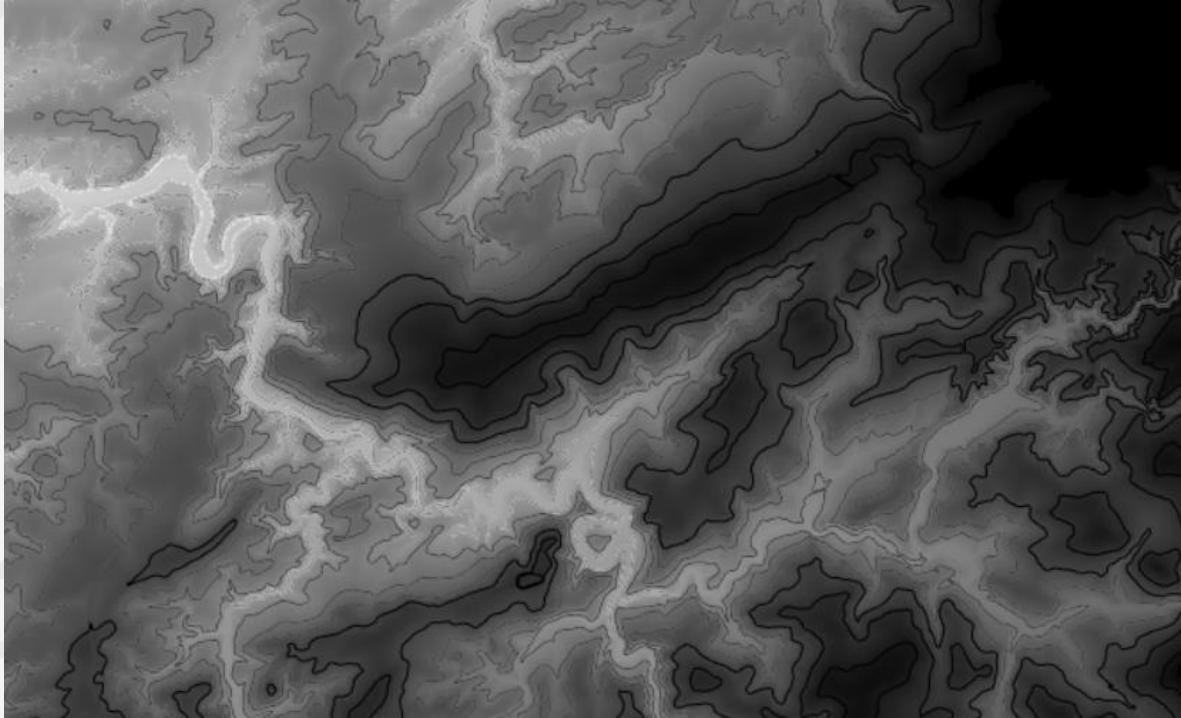


Corine Land Cover 2019 open access



Data sources ITGI Vref (1/10K)
restricted access

1. List of Datasets : elevation



INSPIRE theme	NGI data sources	NGI features	Input format	Access
II. Elevation	ITGI V(1/50k)	Elevation curves	Vector	restricted
II. Elevation	DTM 1m (data from the regions)	seamless coverage	Raster	Restricted , clip on demand
II. Elevation	DTM 20m (derived from DTM 1m)	seamless coverage	Raster	open

1. List of Datasets: orthophotos



50 cm resolution, restricted access, clip on demand

1. List of Datasets : generalities

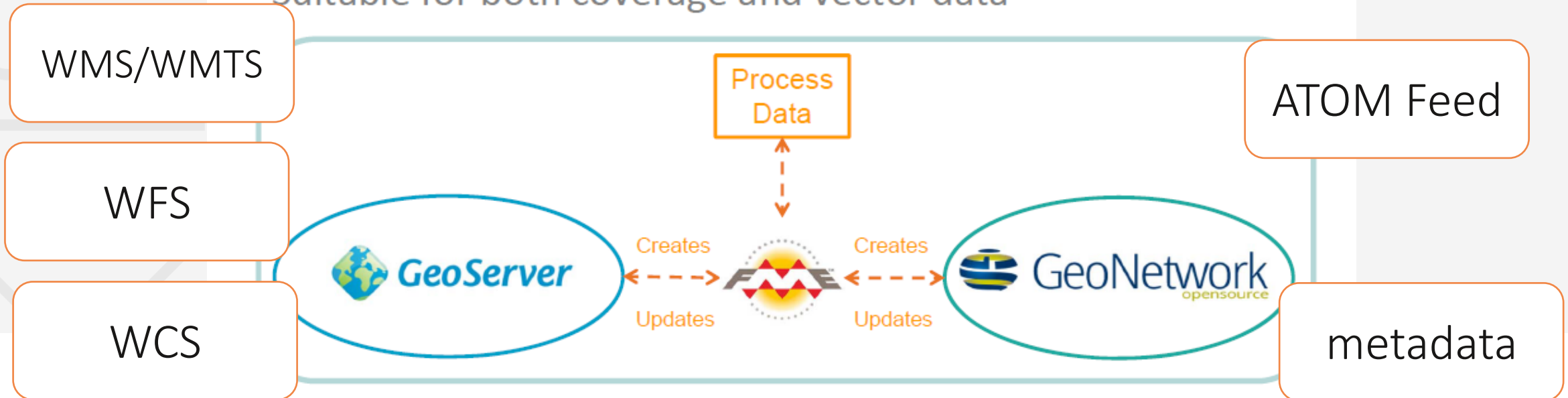
	INSPIRE theme	NGI data sources	Input format	data format	INSPIRE data size (Mb) LOW EST	INSPIRE data size (Mb) HIGH EST
1	III. Buildings	ITGI VRef (1/10K)	Vector	PostgreSQL	2034,46	8137,84
2	III. Utility and Government services	ITGI VRef (1/10K)	Vector	PostgreSQL	11,38	45,52
3	III. Landuse	ITGI VRef (1/10K)	Vector	PostgreSQL	10,48	41,92
5	II. Landcover	Corine Land Cover - Belgique - 2018	Vector	ESRI FGDB	89,2	356,8
6	II. Elevation	levation curve (1/50k)	Vector	PostgreSQL	1178	4712
Total vector					2146 Mb	8582 Mb
7	II. Elevation	DTM 1m (data from the regions)	Raster	ESRI FGDB	126000	126000
8	II. Elevation	DTM 20m derived from DTM 1m	Raster	ESRI FGDB	268	268
9		Ortho 2019 (regions, overlapping orthoimages ,varied resolutions)	Raster	JPEG2000	300000	300000
Total raster					426268 Mb	426268Mb
TOTAL					428414	434850

2. Main Objective

to create automated processes into a workflow allowing

- INSPIRE Metadata creation & update
- INSPIRE Data transformation
- INSPIRE Webservices publications (view-downloads)

Suitable for both coverage and vector data



3. Process Principles

All is machine readable (.xml)

- Machine writable
- Fully automated

Restricted human input

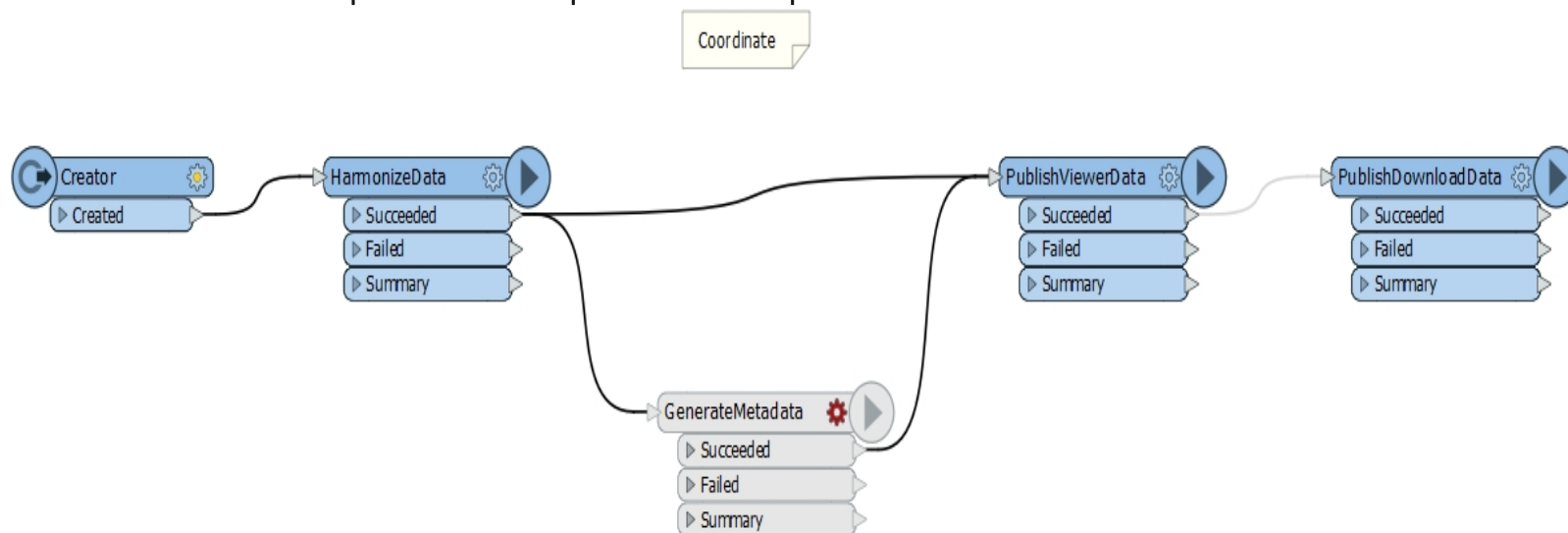
- Configuration parameters
- Metadata content
- Data update

Gains

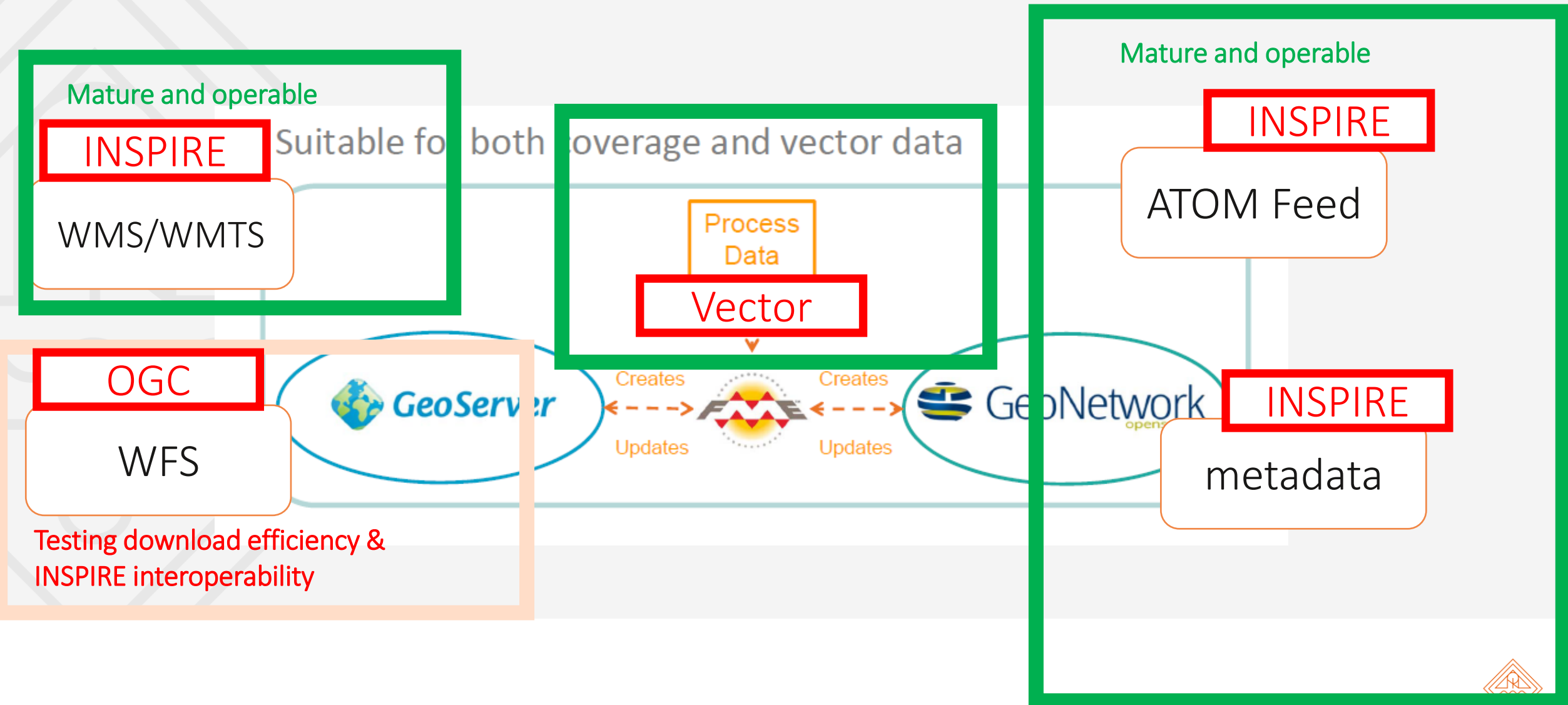
- Insure interoperability
- Avoid inconsistencies

Managed through FME workbench

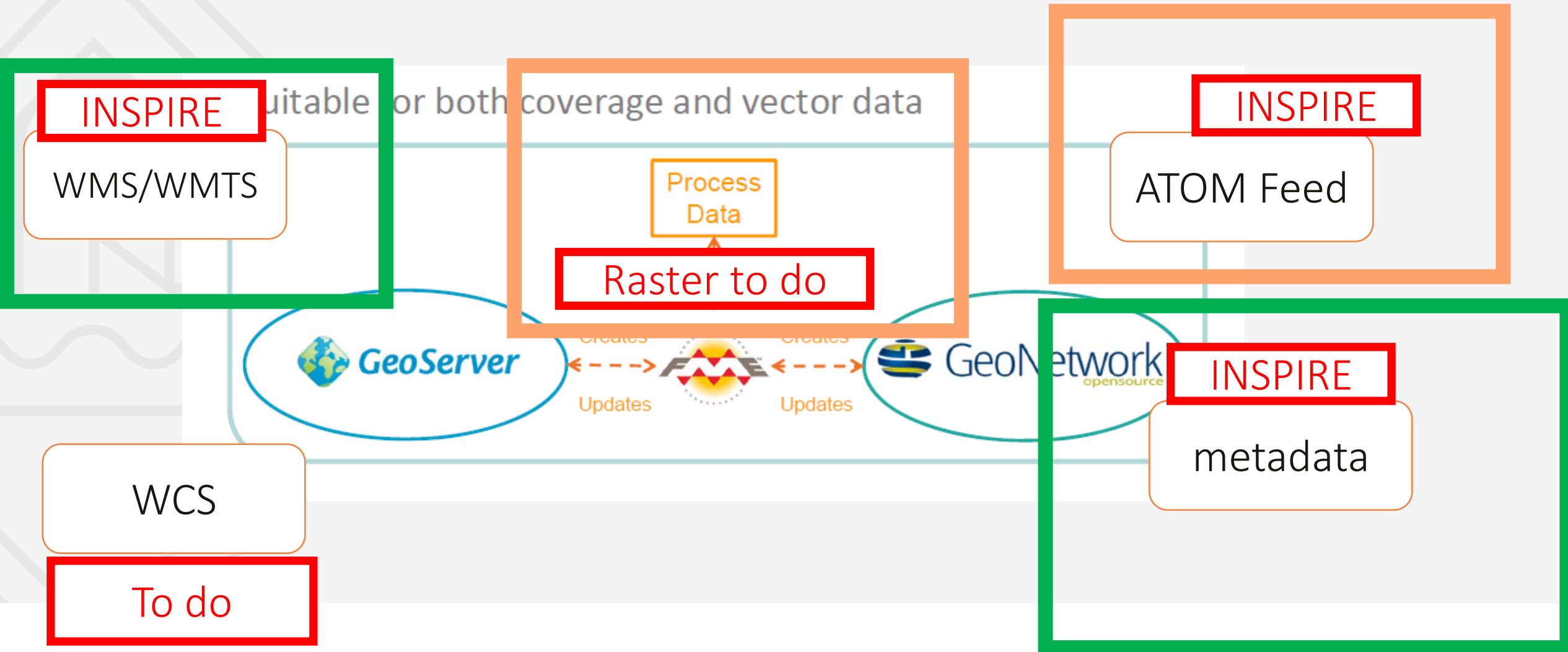
Specific scripts and implementation added



4. State of the Art Workflow for vector data



4.State of the Art Workflow for raster data



5. Raster data The option to deliver INSPIRE data

MULTIPART REPRESENTATION

 Limited use in practice

A GML containing all components except the *range set*, contained in another format such as Well Known Binary.

REFERENCE TO AN EXTERNAL FILE

 Easiest to implement, Allow reuse of existing images

A GML containing all components with the *range set* referencing an external file (GeoTIFF, JP2).

ENCODING THE RANGE INLINE

 Only suitable for small data

The *range set* data is encoded within the XML inline.

Short GML describing the raster data structure

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <gml:FeatureCollection xmlns:gss="http://www.isotc211.org/2005/gss" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:
3   <gml:boundedBy>
4     <gml:Envelope srsName="EPSG:3035" srsDimension="2">
5       <gml:lowerCorner>2930936.94450703 4011219.3780481</gml:lowerCorner>
6       <gml:upperCorner>3016910.14450077 4074406.05226146</gml:upperCorner>
7     </gml:Envelope>
8   </gml:boundedBy>
9   <gml:featureMember>
10     <oi:OrthoimageCoverage gml:id="ortho2017_epsg3035">
11       <gml:description>Official orthoimage of the Great Duchy of Luxembourg from the overview of 2017 at a resolution of
12       <gml:identifier codeSpace="http://inspire.ec.europa.eu/ids">http://catalog.inspire.geoportail.lu/geonetwork/dataset/
13       <gml:domainSet owns="false" xlink:type="simple">
14         <gml:RectifiedGrid gml:id="RectifiedGrid.ortho2017_epsg3035" srsName="http://www.opengis.net/def/crs/EPSG/0/3035">
15           <gml:limits>
16             <gml:GridEnvelope>
17               <gml:low>0 0</gml:low>
18               <gml:high>316071 429688</gml:high>
19             </gml:GridEnvelope>
20           </gml:limits>
21           <gml:axisLabels>x y</gml:axisLabels>
22           <gml:origin>
23             <gml:Point gml:id="origin_point.ortho2017_epsg3035" srsName="http://www.opengis.net/def/crs/EPSG/0/3035">
24               <gml:pos>3016910.1445007734 4011219.3780481028</gml:pos>
25             </gml:Point>
26           </gml:origin>
27           <gml:offsetVector srsName="http://www.opengis.net/def/crs/EPSG/0/3035">0 0.19991291264733582</gml:offsetVector>
28           <gml:offsetVector srsName="http://www.opengis.net/def/crs/EPSG/0/3035">-0.20008285079811297 0</gml:offsetVector>
29         </gml:RectifiedGrid>
30       </gml:domainSet>
31       <gml:rangeSet>
32         <gml:File>
33           <gml:rangeParameters xlink:href="ortho2017_epsg3035.jp2" xlink:role="http://www.opengis.net/spec/WCS_cover
34           <gml:fileReference>ortho2017_epsg3035.jp2</gml:fileReference>
35           <gml:fileStructure>Record Interleaved</gml:fileStructure>
36           <gml:mimeType>image/jp2</gml:mimeType>
37         </gml:File>
```

5. Raster data 3 challenges

1. Data size and server storage

- DTM 1m: 126 Gb
- Orthos : 300 Gb

2. Managing restricted access for download services

- security method for WCS?, no real experience
- first option : ATOM feed (secured) -> choice of a suitable grid cell

3. Heavy processing for preparing the data

- estimation of 12 computer days for orthos seamless coverage

6. Conclusion

- Annex II and III datasets well identified
- Reducing the number of effective INSPIRE datasets
- OK for vector , mature methods and procedures thanks to Annex I
- Experiencing Raster data, challenge for handling big data size with download services
- Restricted access for web downloads services not to underestimate

It is in the pipe.

Make take a while but finally happen!



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