



Federal Agency for
Cartography and Geodesy

Implementing INSPIRE Download Services at BKG

Introduction

About us

- Technical agency under the Federal Ministry of the Interior
- Central service provider and competence center for the German government for
 - Topographic data
 - Cartography
 - Geodetic reference systems
- Service Centre of the Federal Government for Geo-Information and Geodesy
(Dienstleistungszentrum des Bundes für Geoinformation und Geodäsie - DLZ)
 - Central contact
 - Data provider
- Responsible for small scale data (starting at 1:200 000)
 - But also central distribution of federal large scale data (up to 1:100 000)

Introduction

BKG Products

Digital Topographic Maps

Digital Landscape Models

Geographical Names

Administrative Units

Digital Elevation Models

OpenData

DTK250



DTK500-V



DTK1000



D2500

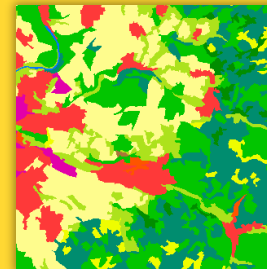


Reported to INSPIRE

DLM250



CLC10



VG250, VG1000, ...



DLM1000



GN250, GN-DE











DGM250, DGM500, ...



Introduction

Annex-Themes

Annex Theme	DLM*	CLC10	GN	VG*	DGM*
Annex I					
 Hydrography	yes				
 Transport Networks	yes				
 Administrative Units	yes**			yes	
 Geographical Names			yes		
 Protected Sites	yes				
 Geographical grid Systems					
Annex II					
 Elevation					yes
 Land cover		yes			

* All scales ** Same as VG

Introduction

Situation 01/2017

Milestones	DLM*	CLC10	GN	VG*	DGM*
Metadata available for spatial data sets	Yes**	Yes**	Yes	Yes**	Yes**
View Service	Yes	Yes	Yes	Yes	Yes
Download Service	Atom	Atom	Atom and WFS	Atom	Atom
Metadata available for spatial services	Yes	Yes	Yes	Yes	Yes
Interoperability			Yes		

* All scales

** Own data specification

Roadmap

1. Transformation of DLM250 till 23.11.2017
 - Themes: TN, HY, AU, PS
 - Services on product base → one service for multiple INSPIRE themes
2. No transformation and services DLM1000
 - Product is derived from DLM250
3. No transformation and services for VG250/VG1000
 - Products are derived from DLM250/DLM1000
4. CLC10 in 2017
 - Theme: LC
 - Wait for experiences from DLM transformation and other institutions
5. DGM till 2020
 - Theme: EL
 - Observe WCS development

Technical Solution

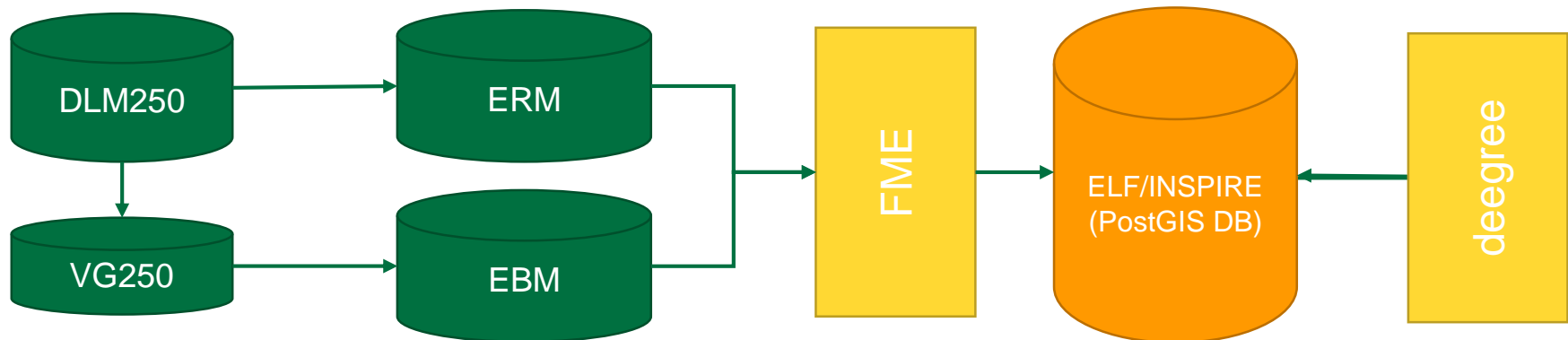
Service

- INSPIRE Services based on deegree
- What is deegree?
 - Open source software for spatial data infrastructures and the geospatial web
 - Implements geospatial webservice specifications of the OGC and the INSPIRE Network Services
- Why deegree?
 - Implements WFS standards 1.0.0, 1.1.0 and 2.0.0
 - Designed for rich data models from the bottom up
 - Backend supports flexible mapping of GML application schemas to relational models
 - Implements WMS standards 1.1.1 and 1.3.0
 - Good experiences when participating in ELF-Project
 - Fits in our infrastructure

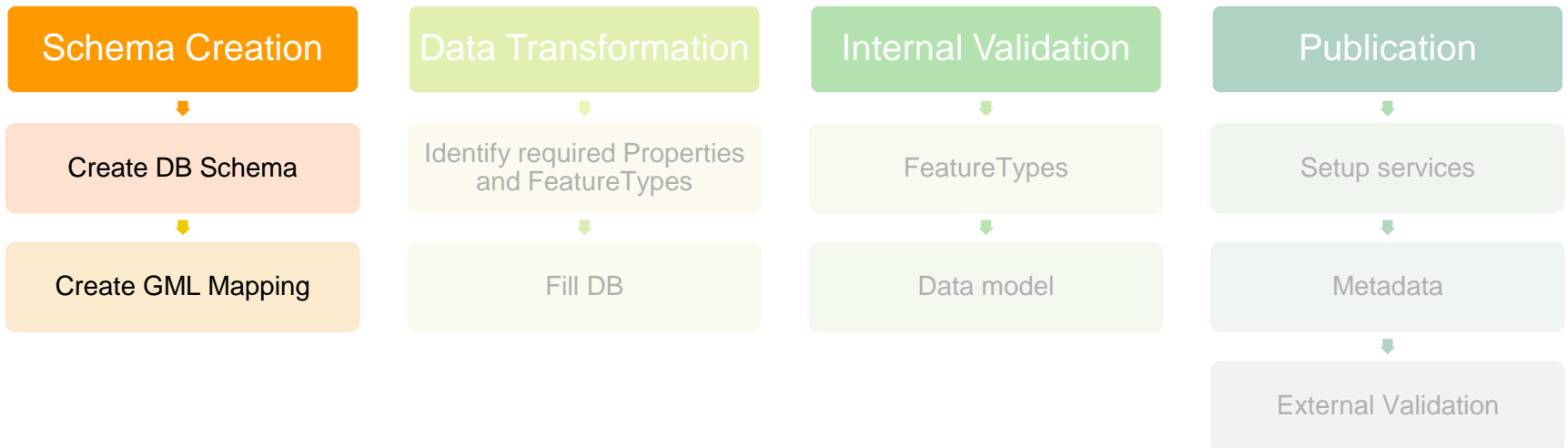
Technical Solution

Data Transformation

- Within ELF-Project transformation of Euro Geographics (EG) contents
- Existing processes for transformation of DLM250 to ERM/EGM
 - we can reuse the ELF-process
- GML proved as inflexible and had drawbacks



The Process

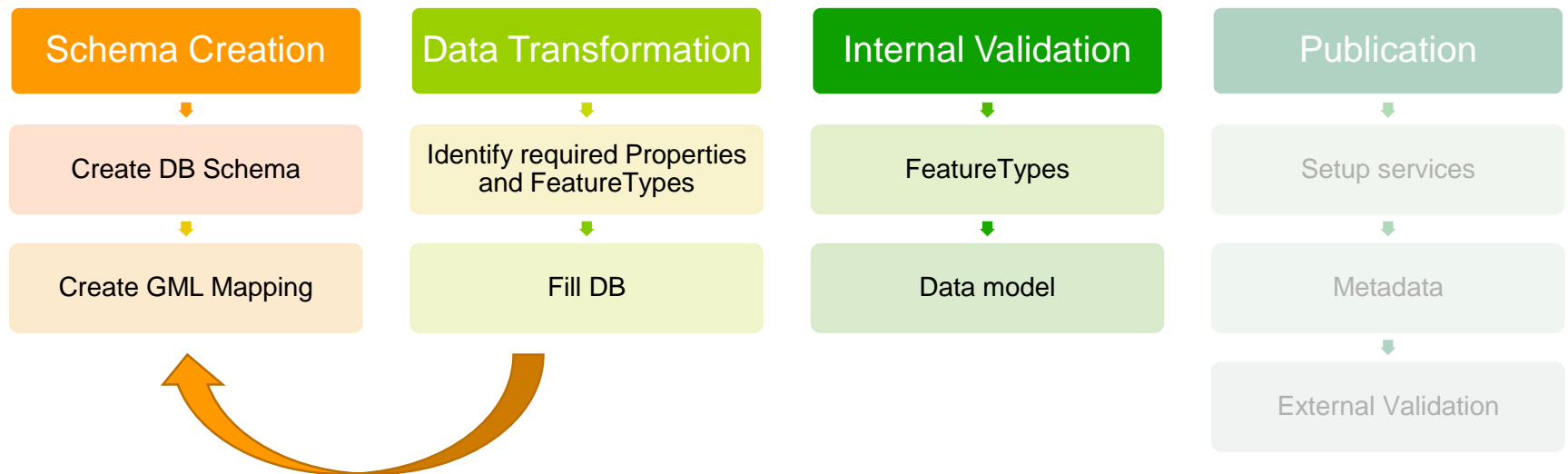


The Process

Schema Creation

- deegree offers tools to create mapping and DB schema from application schemas
 - Automated and GML-schema driven
 - Latest release drops wizard in GUI
→ own tool based on deegree libraries
- Manual post processing
 - Putting themes in DB schemas for better structures
 - Renaming tables and column names
 - Dropping unused FeatureTypes, properties and relations
- Results for DLM250 published on GitHub
 - <https://github.com/de-bkg/deegree-workspace-dlm250-inspire>

The Process

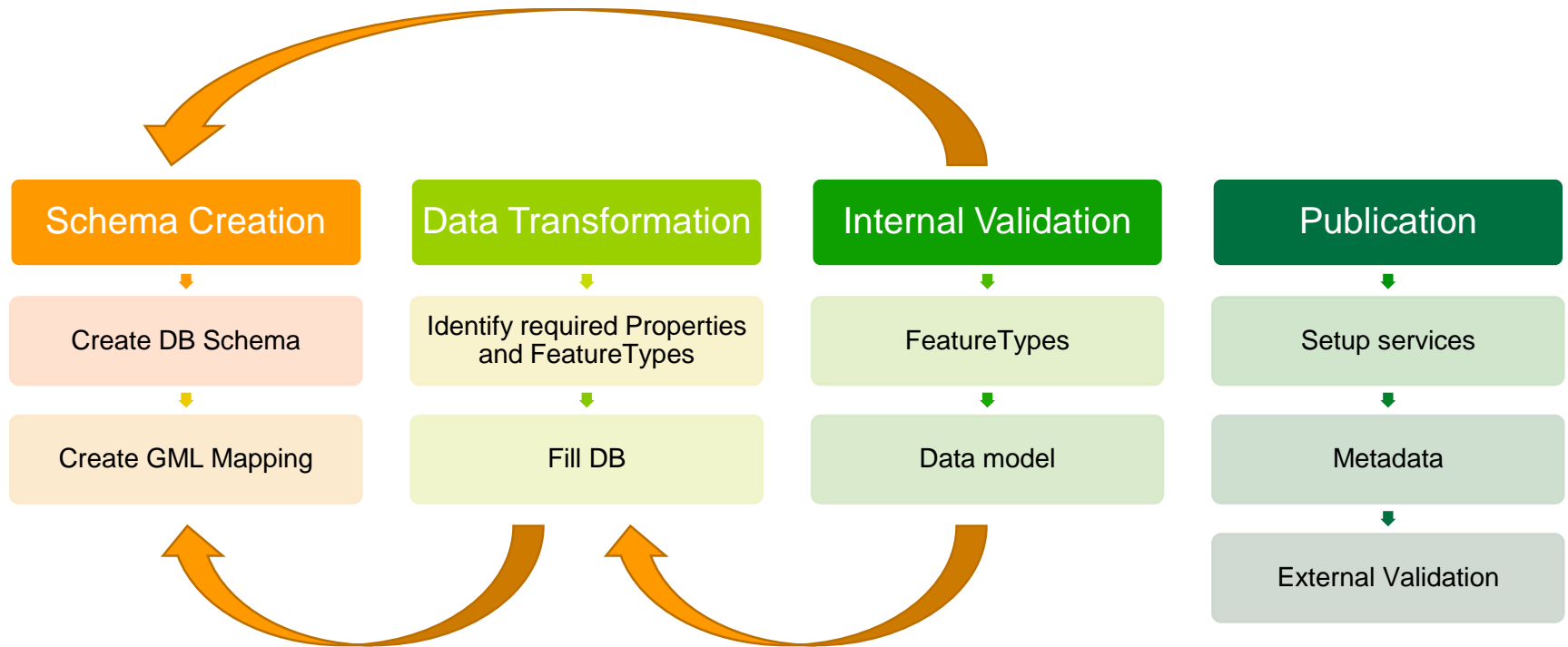


The Process

Validation

- We required a method to validate generated data and services
 - Does the service work?
 - Is the data modelling correct?
 - Feedback in early stage of development to reduce costs for fixing.
- Online validators not suited:
 - Mostly concentrating on service parameters and metadata
 - Can't use internal test services
- First approach: manually typing URLs
- We implemented simple tool for automatic testing
 - Validate provided FeatureTypes of WFS against schema
 - <https://github.com/de-bkg/wfs-ft-validator>

The Process



The Result

What we achieved

- Data transformation for Annex I in DLM250 complete
- WFS DLM250 online
http://sg.geodatenzentrum.de/wfs_dlm250_inspire?SERVICE=WFS&REQUEST=GetCapabilities
 - Containing TN, HY, AU and PS
- Next steps and open issues
 - Finalize metadata records
 - External validation
 - Validate and optimize performance
 - Transformation and services for other products and Annex themes

The Result

How to use it?

- So we've done it! – What can we do with it?
- No ready to use clients for INSPIRE WFS available
- Most GIS have troubles handling complex FeatureTypes
- QGIS
 - WFS 2.0 Client
 - Complex GML Info
- Some Data models like TN are too complex for simple use cases
 - Very loose data structures where some attributes are only referenced via hrefs
 - Filtering for subsets of data sometimes not possible



Summary

Our Experiences

- Quite hard work to implement INSPIRE themes
- Learned a lot about INSPIRE data models
 - In some cases not practical
- Learned a lot about deegree
 - Powerful tool, but needs some IT skills
 - Community not very active
- We want to share:
 - Our Service:
http://sg.geodatenzentrum.de/wfs_dlm250_inspire?SERVICE=WFS&REQUEST=GetCapabilities
 - Deegree configuration:
<https://github.com/de-bkg/deegree-workspace-dlm250-inspire>
 - Validation tool:
<https://github.com/de-bkg/wfs-ft-validator>

Thank you for your kind attention!

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Ressources:

Service:

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Validation tool:

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