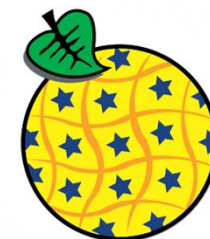




# BaseMap Specification *INSPIRE – Antwerpen* *2018-09-21*



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**A specification for traditional mapping aligned with INSPIRE data specifications**

# Outline

- Background – Norway grant support to former socialist countries in Europa
- Why another specification?
- Base Map Specification theme/content
- Architecture
- UML model structure
- Modelling technics
- Tools
- Achievements and lessons learned

# Background – Norwegian support to former socialist countries in Europe

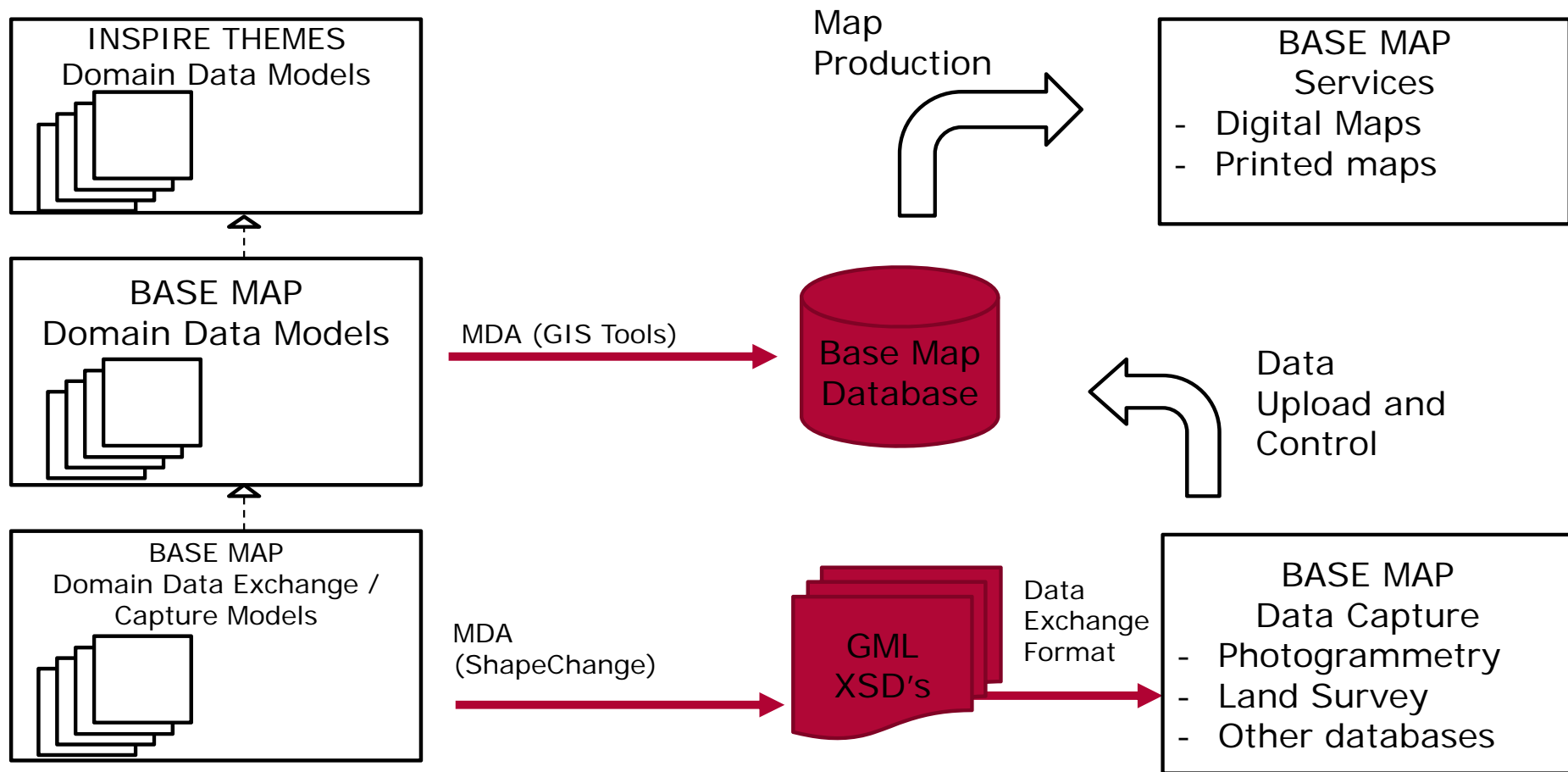
Since the collapse of socialist regimes in Europe, the Government of Norway has provided grants for projects in the Balkan region and in republics of former Soviet union.

Establishing spatial data is a substantial part of the support from Norway. For the coming years, approximately 14M€ will be allocated to projects in East - and South-East Europe, where establishment of primary base map data is a component.

# BaseMap Specification – Why another specification?

- Framework for new map production countries mainly in the eastern part of Europe, but also other parts of the world where applicable.
- Applies the Norwegian experience in traditional map production and aligning this with the INSPIRE data specification for the relevant themes.
- Is not INSPIRE compliant (only what you can register from aererial photos), but could be extended at national level to be INSPIRE compliant.
- Will increase the amount and availability of data that could be used to fulfil the INSPIRE requirements.
- Based on experience from existing projects internationally and identified user requirements.

# Architecture



# UML model structure



## Model

### BaseMap

INSPIRE

SOSI Generelle konsepter

SOSI objektkatalog

FKB produktspesifikasjon

### BaseMapSpecification

#### Base Map Domain Models

«ApplicationSchema» BasicConcepts

PhotogrammetrySources

DatabaseSources

#### Base Map Data Capture Models

Photogrammetry

Land Survey

Databases

Generic concepts applied in FKB

National Feature catalogue / Feature concept Dictionary

Norwegian product specifications for large scale data

Full domain models

Domain independent basic concepts for all themes

Realizations from INSPIRE

Full domain model for database generation

Data product specification framework for data capture.

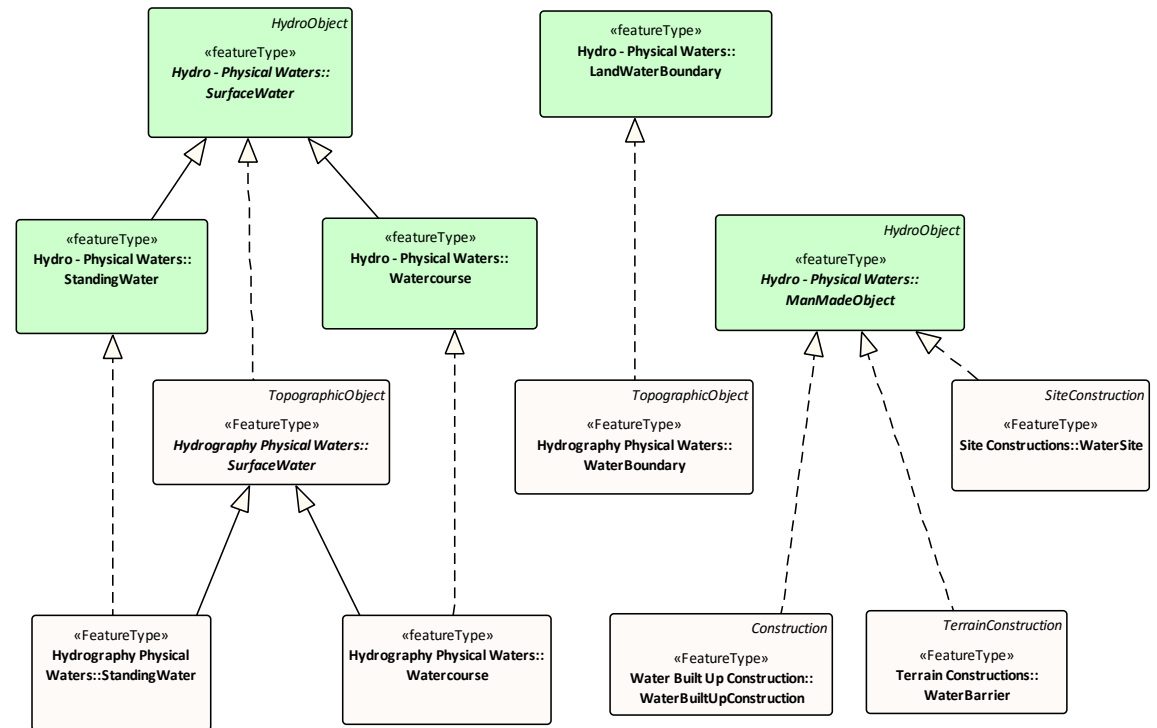
# Modelling technics

Earlier projects of INSPIRE extensions have identified three main UML concepts:

- Subtype
- Realize ✓
- Redefine

**Themes:**  
**Nature (Land use)**  
**Building and Constructions**  
**Hydrography**  
**Transport**  
**Utilities**

Addresses  
Administrative units  
Cadastral parcels  
Geographical names  
Protected sites  
Elevation



Example of realizing features from INSPIRE Hydrography

# Tools

Tool	Function
Enterprise Architect (EA) with SVN subversioning	UML modelling
ShapeChange version 2.1.0.10 by <a href="http://www.interactive-instruments.de/">http://www.interactive-instruments.de/</a>	Generate GML application schema from UML model
Shapechange plugin for EA by <a href="http://arkitektum.no">arkitektum.no</a>	GUI for ShapeChange in EA
GISTooles for UML by <a href="http://arkitektum.no">arkitektum.no</a>	GUI for generation of ArcGIS, PostGIS, Geoserver, Degree databases and FME mapping
GML example generation by <a href="https://gmlgenerator.geonorge.no/">https://gmlgenerator.geonorge.no/</a>	Generates XML example pseudo file from xsd, to ease the understanding of the GML application schema
PostGIS database	Database for storing the datam according to the UML models.
SOSI model validation by Norwegian Mapping Authority ( <a href="https://github.com/kartverket/SOSIModelValidation/blob/master/SOSIModelValidation.vbs">https://github.com/kartverket/SOSIModelValidation/blob/master/SOSIModelValidation.vbs</a> )	Validation of UML models according to ISO 191xx standards, plug-in to EA.



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# Achievements and lessons learned

Applied in Georgia – few national comments and changes to the framework

To be applied in Moldova, Ukraine, Kosovo, Montenegro and Albania.