



Kartverket

# **INSPIRE extensions**

## **With examples from SOSI-“plan” and INSPIRE Planned Land Use**

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# Use cases

1. Make national product specifications an extension of INSPIRE with examples and experience from SOSI
2. Extend INSPIRE with feature types and properties (like ELF).

These use cases are slightly different and may require different approaches.

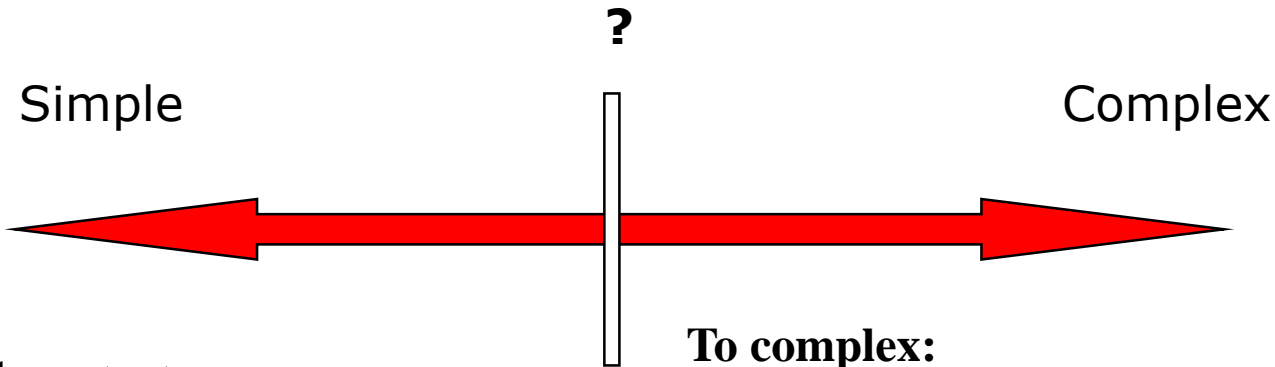
# SOSI Extension to INSPIRE - Scope

- **Revise the Norwegian standard «SOSI Plan»**
- **No change in legal act on planning.**
- **Include 3D aspects**
- **Document the differences between the Norwegian feature catalogue on «Plan» with INSPIRE Planned Land Use**
- **Consider alignment with INSPIRE Planned Land Use for the revision.**
- **To be modelled according to the Norwegian standard «Rules for UML modelling»**
- **Apply model driven architecture (MDA) (GML application schema to be generated automatically from the UML model).**



# Why?

What is the correct level?



## Too simple:

- Not enough content
- Few benefits for a wide range of users.
- No reason to integrate from other systems.

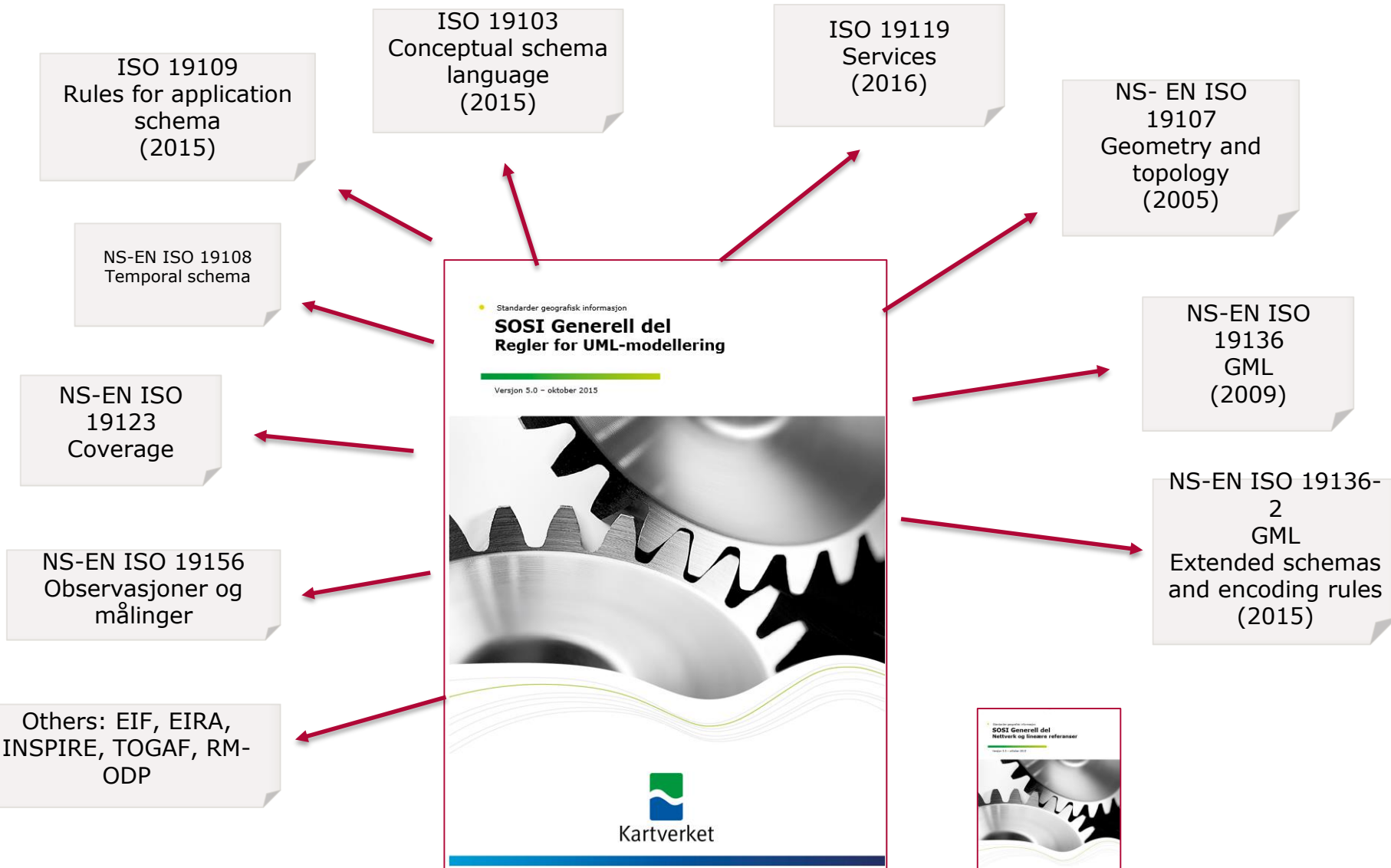
## To complex:

- Difficult to understand or implement
- Very useful but for a very few applications
- Expensive to integrate from other systems.

INSPIRE (voidability)



# How?



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# How?

## SOSI - Rules for UML modelling

**/req/INSPIRE\_A  
lignment**

**In the further work with SOSI standard feature catalogue the relationship to the INSPIRE models shall be documented according to one of the following approaches, wherever such an alignment is applicable.**

- 1. Realize the INSPIRE model elements by using UML <<realize>>, including a matching table (from the ESDIN project) to document the mapping.**
- 2. Subtype INSPIRE models with national extensions. (Based upon the ELF (European Location Framework) experiences.**
- 3. <<Redefine>>**

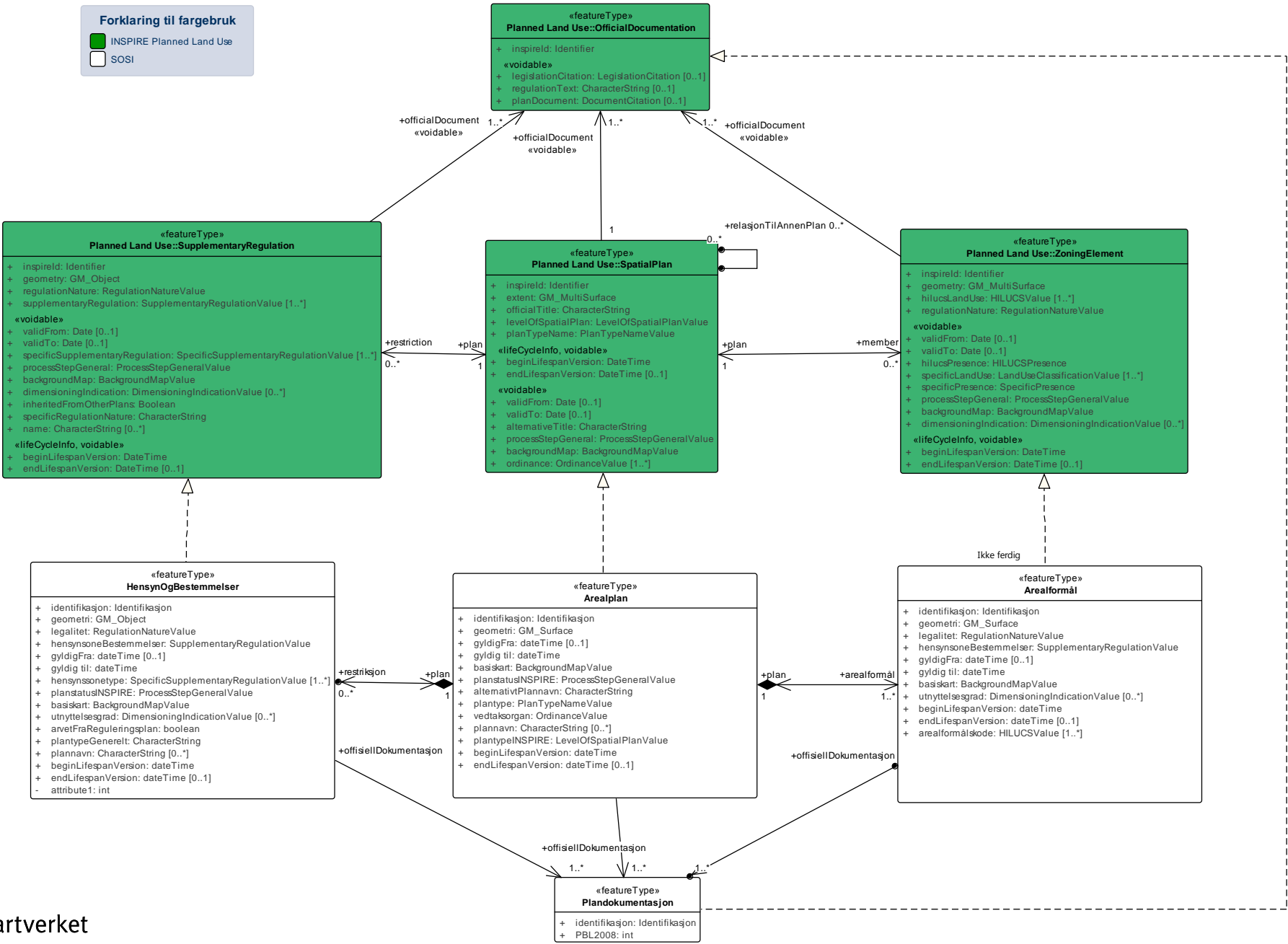
**If the project group comes to the conclusion that there are no relationships to any INSPIRE data specification themes, this shall be stated in the introduction to the standard.**

# Example <<realize>>

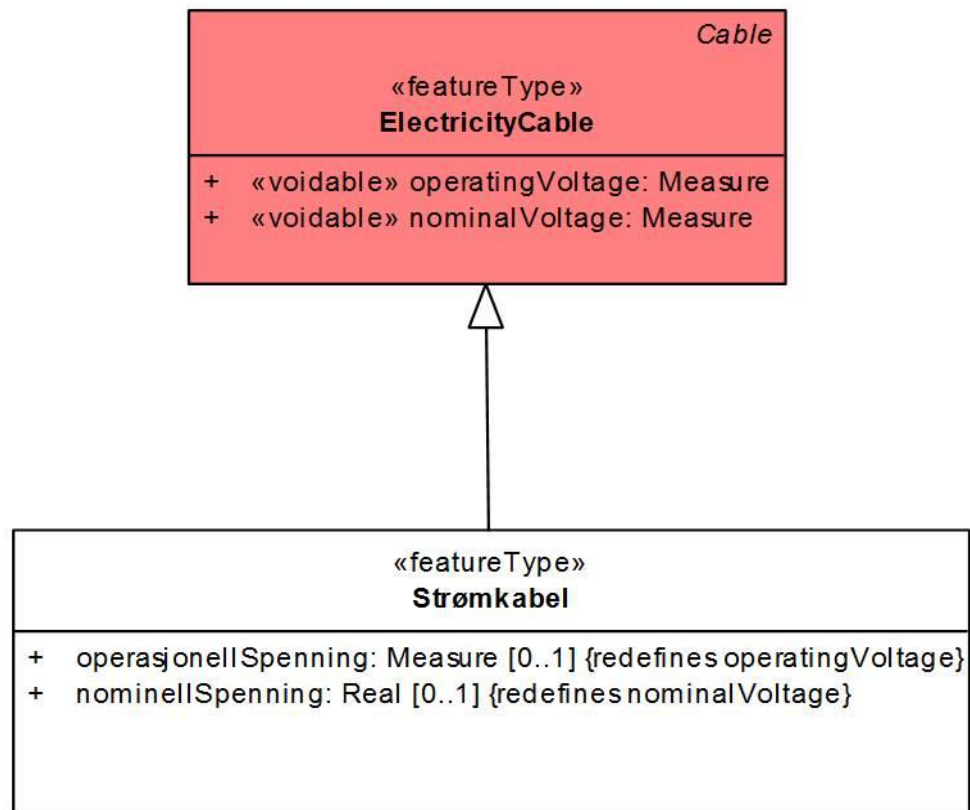
Forklaring til fargebruk

INSPIRE Planned Land Use

SOSI



# Example <<redefine>>



Redefines inherited attributes from INSPIRE



## Example <<subtype>>

This is the ELF modelling approach.

# Other issues – UML/XMI

INSPIRE is modelled by UML version 1.3 (1.4), based upon ISO standard modelled in 1.3 (1.4).

Revised ISO standards are based upon 2.4 (2.5). New product specifications are modelled in 2.4 (2.5)

Enterprise Architect exclusively uses XMI1.1 for round-tripping models using Version Control, see Se

[http://sparxsystems.com/enterprise\\_architect\\_user\\_guide/12.1/the\\_model\\_repository/limitationxmi.html](http://sparxsystems.com/enterprise_architect_user_guide/12.1/the_model_repository/limitationxmi.html)

Example: Altova requires XMI 2.4 models.  
Other tools have different requirements.

XML Type	UML 2.4.1 (XMI 2.4.2)
	UML 2.4 (XMI 2.4)
	UML 2.3 (XMI 2.1)
	UML 2.2 (XMI 2.1)
	UML 2.1.2 (XMI 2.1)
	UML 2.1.1 (XMI 2.1)
	UML 2.1 (XMI 2.1)

# Other issues – Language

To enable national data specifications to be an «extension» of INSPIRE all the model elements need to be translated to national language. Some of the properties are translated to all EU languages (Norway has a similar approach but this is handled at the national level). But these translations are not part of the UML model.

ISO 19109 Rules for Application Schemas has a standardized way of handling languages in UML models, as tagged values. Until there is sufficient tool support, alias mechanism in EA is applied.

Domain knowledge is a must.

# Other issues – Tool support

Example:

For the modelling rules for ELF, tool support was simultaneously developed in ShapeChange.

European extension mechanisms (like «redefine» ) would easier be supported than national rules. (ARE3NA project).

SVN version control by XMI 1.1. Are we happy about that?. How to influence OMG and the vendors. Easier to do from a European level than national level.