



**.KEN**



# Extending or adapting INSPIRE?

INSPIRE Conference – September 2017

**Context**

# Objectives



- Provide the main learnings from a workshop on INSPIRE profiles
  - On 20-21 June 2017, in Paris
  - Organised by:
    - INSPIRE KEN
      - Knowledge Exchange Network from EuroGeographics
    - EuroSDR
    - Geonovum
      - Initiated a survey on INSPIRE extensions
  - Aiming to share experience about influence of INSPIRE on new products or projects
    - INSPIRE extensions
    - INSPIRE adaptations
    - ....

# June 2017 workshop



Around 50 attendants.  
Mainly experiences at national and European levels.

# Legal context



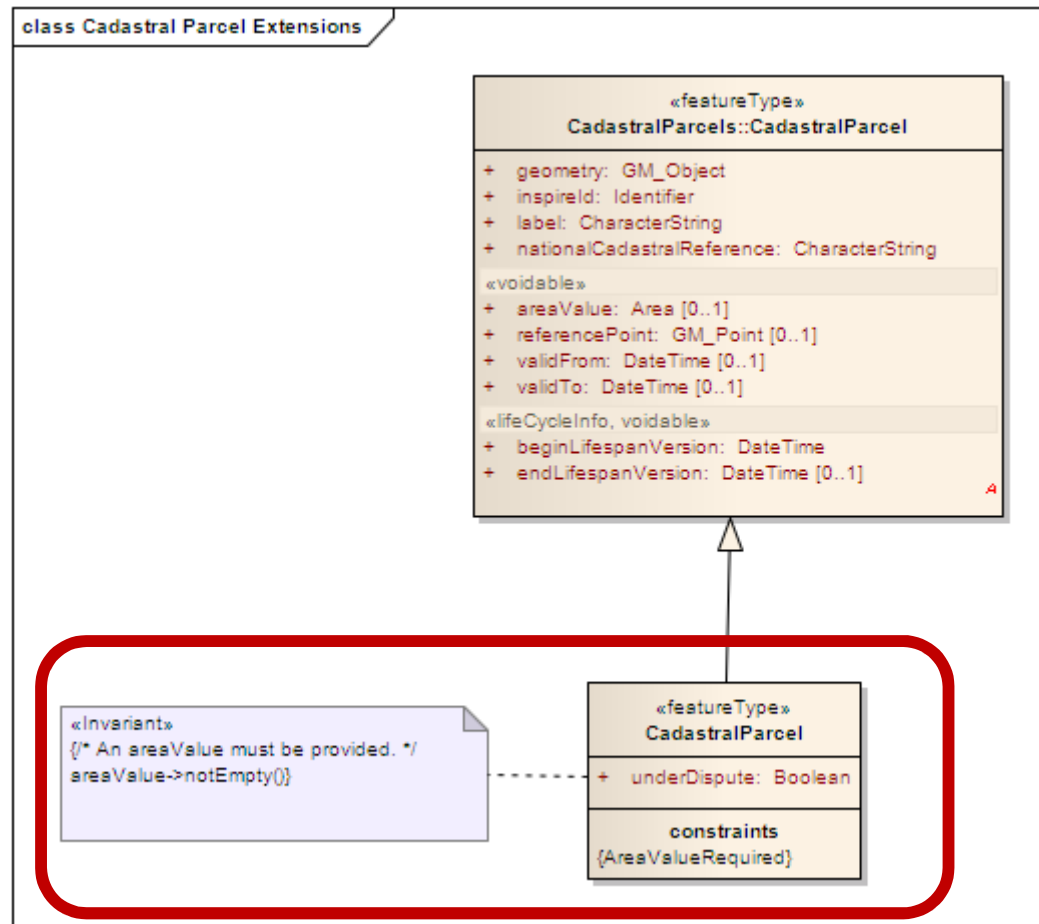
- INSPIRE is about providing existing data in a common data model
- Two ways to achieve it
  - Transform your data
    - short term solution
  - Transform your data model
    - Existing data: long term solution
    - New data: short term solution

# Legal context



- INSPIRE does not require capture of new data
- But using INSPIRE data models as a basis for national or community extensions is encouraged (e.g. in the Generic Conceptual Model)
- Rules for extensions
  - Don't break any INSPIRE requirements
  - Technical solution: **inheritance**

# Legal context



The child feature type inherits the properties of INSPIRE parent feature type and is used to add new attributes or constraints

# **Main learnings**



# When?

- INSPIRE extension or adaptation are envisaged when making something **new**
  - New product
  - Redesign of existing product
  - Project
  - New standard

# Why?

- For INSPIRE compliance:
  - Make transformations easier (adaptation) or even not required (extension)
  - Mainly at national or local level
- Natural starting point when making something completely new
  - Mainly for European projects or new standards
  - Facilitate coordination between stakeholders

# What?

- Lots of experiences
- At various levels: global, European, national, local
- INSPIRE themes
  - Mainly vector data
    - Very few examples on coverage data
  - Focus on annex I themes
    - But also annexes II and III
- INSPIRE influence: **data models**, modelling principles, methodology

# How?

Need for  
standardisation  
=> extension



Need for specificities  
and flexibility =>  
adaptation



# Need for flexibility

- We have more
  - This case may be managed using either
    - Extension (according to GCM rules)
    - Adaptation

# Need for flexibility

- We have less
  - Ex: lots of « voidable » properties
    - that will not be filled in national/local product
  - Key reason to choose the « adaptation » solution

Show what we have without too much noise

The INSPIRE extension rules are too strict about the “voidable” information that we don’t provide.

There is no need to keep them in the model at national level.

# Need for flexibility

- We have different


- Production context

- Language
    - Flattening
    - Merging several INSPIRE application schemas (e.g. PhysicalWaters and HydroNetwork)

- Modelling issues

- Generalisation/specialisation

- ex: with extension, properties added on last level of hierarchy => a single association in national level results in many (80) associations in extended model [Sweden]



Key reasons to choose the « adaptation » solution

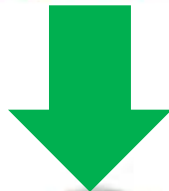
# Benefits of standard (extensions)

- Compliance with INSPIRE is ensured
- Convenient for European use
  - Feasible, sometimes easy
  - “voidable” concept is adapted
- National level
  - Single dataset to serve INSPIRE and national data



# How?

Need for specificities  
and flexibility =>  
adaptation



Need for  
standardisation  
=> extension



**More  
« adaptations »  
than  
« extensions »**

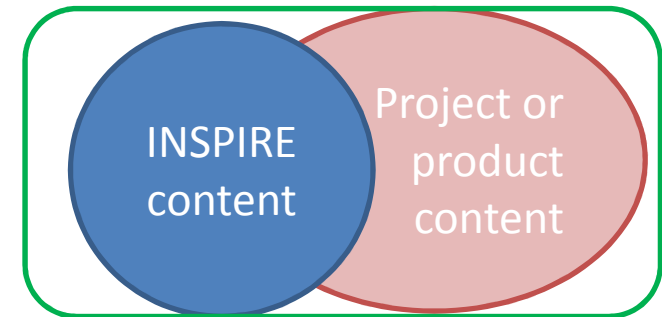
# How?

## Modelling approaches

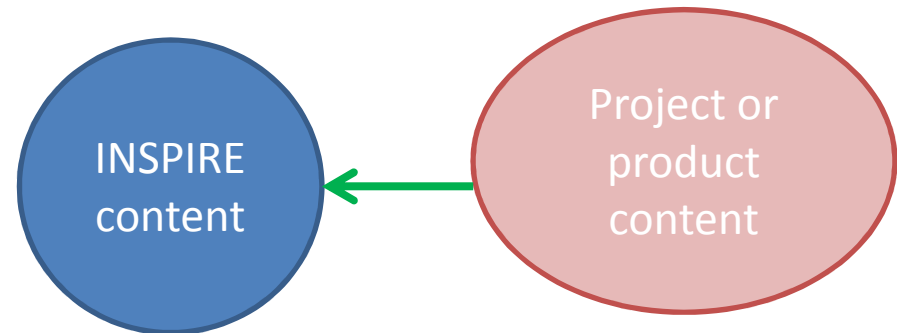
- 2 main cases

- Integration

- In case of common overlapping content



- Linking



# How?

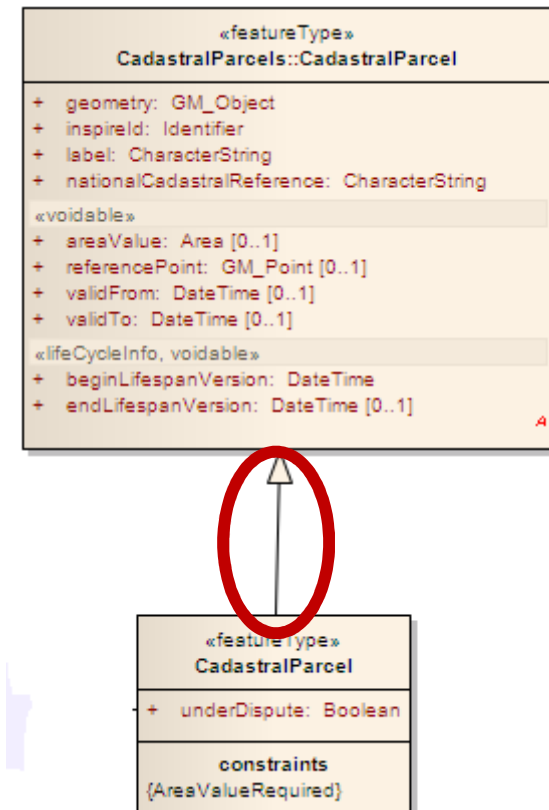
## Modelling approaches

- Integration
  - Inheritance
  - Realisation
  - Subtype with redefine
  - Mixin inheritance

# How?

## Modelling approaches

- Inheritance
  - Mechanism for **extension**
  - Promoted by Generic Conceptual Model
  - Ensure INSPIRE compliance
  - But limited flexibility



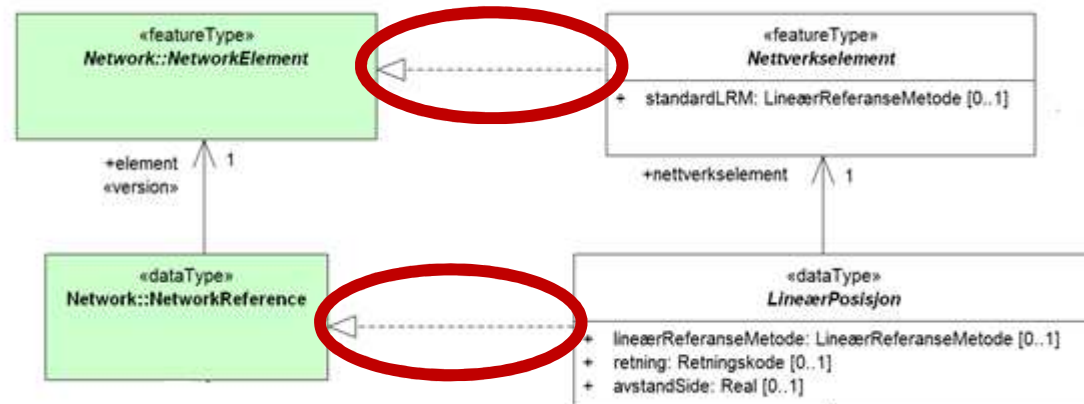
# How?

## Modelling approaches

- Realisation
  - Mechanism for **adaptation**
  - Very flexible, free “inspiration”
    - Allows anything
  - Open issue: document matching with INSPIRE

– Widely used

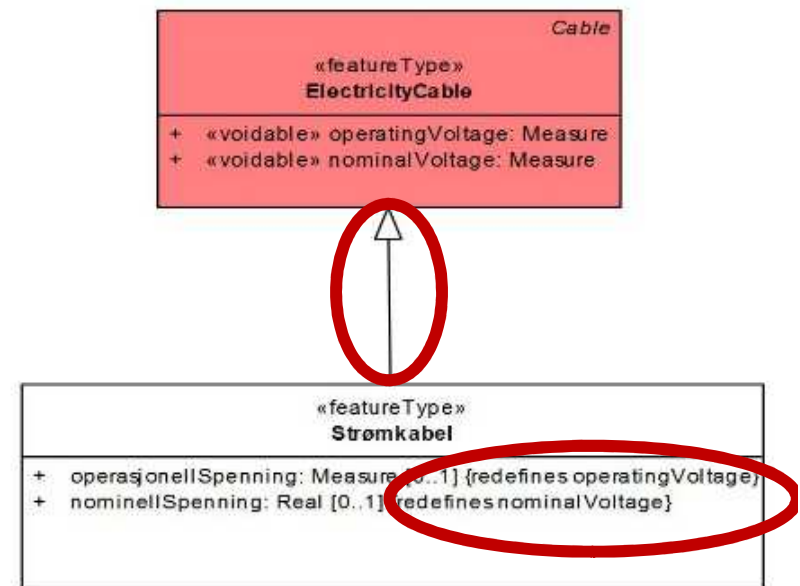
- Explicitly (UML models)
- Implicitly



# How?

## Modelling approaches

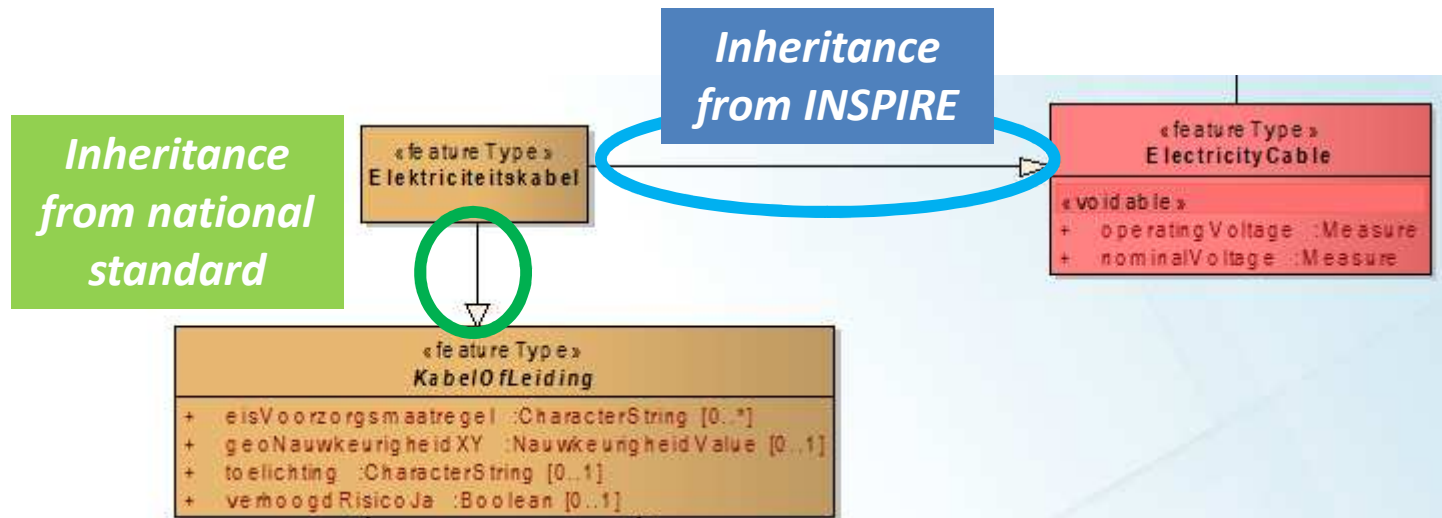
- Subtype with redefine
  - Mechanism for **adaptation**
  - Was tested but not adopted by Norway (kartverket)
    - Tools not yet mature enough
  - However, looks promising solution if the new model is close to the INSPIRE one
    - e.g. to deal with language issues



# How?

## Modelling approaches

- Mixin inheritance
  - Mechanism for extension (?)
  - Was tested by Netherlands (Kadaster)



# How?

## Modelling approaches

- Linking
  - Classical UML association
    - EU Disaster damage and loss database
      - New model « Affected Element » associated with the INSPIRE NZ data model
  - Linked data mechanism
    - link the INSPIRE PS to the Designated Areas of EEA
    - using the INSPIRE Identifier to make the join.



# Conclusions

# Ideal knowledge organisation

- It is the general objective of these INSPIRE based new specifications
- Methods may vary according the context
  - Balance between specificities and harmonisation
    - Existence and weight of existing solutions
      - E.g. legal national requirements
    - Human factor: INSPIRE champion, UML skills, ...

# INSPIRE standard

- INSPIRE Technical Guidelines include conceptual core models and **extended models**
  - Physical models published only for core models (IR)
  - Stakeholder interest for extended models but lack of physical models is an issue
  - To be published by European Commission?
    - Various qualities
    - Need for review before publication
- Changes in INSPIRE data specifications:
  - Requests for change have been submitted but no feed-back
  - Need to clarify roles of Thematic Clusters and of MIG

# INSPIRE standard

- The experiences of extending or adapting INSPIRE models may address
  - Specific data (e.g. Business data)
    - register these new models?
  - Reference data
    - integrate the extensions or modifications in INSPIRE TG or IR?

# To know more

- June 2017 workshop:
  - <http://www.eurogeographics.org/content/workshop-inspire-extension-june-2017>
- Geonovum survey
  - <http://inspire-extensions.wetransform.to/> (for the tutorial/methodology)
  - <https://www.haleconnect.com/> (for the modelling tools)