



Miljøministeriet
Geodatastyrelsen

- Modelling geodata from an e-government perspective

From data modelling to data distribution
in the Danish Basic Data Infrastructure

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Outline

- Context and Prerequisites
- Modelling Concepts and Inspiration
- eGovernment Infrastructure
- Model rules
- Public data: “Basic Data”
- Further work





Model Rules and Models Rule



28-30 January 2015

Context and Prerequisites

- **The task:** to set up a general framework for the efficient modelling of geodata and other types of public data
- **The inspiration:** from the geodata world, INSPIRE and the emerging national public data: 'Basic Data'
- **The general concept:** A way to consider the task of modelling the different types

The objectives behind the modelling concept

Possibilities

- INSPIRE is considered well founded as framework and the methodology is based on ISO and OGC standards
 - Re-use.. Re-use!
- Perspectives – model driven development:
 - Maintain data models and documentation in one place, generation of logical/physical schemas automatically
 - Efficiency
 - Ensure transparency in development and decisions



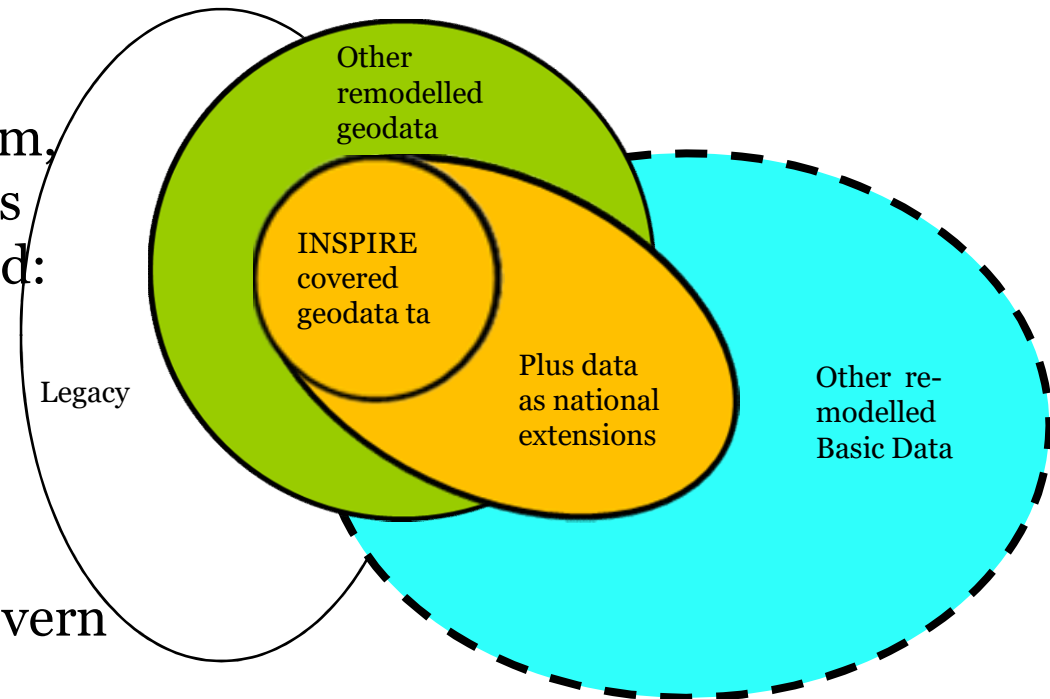
The principles to govern the modelling concept

- Common methodology for distribution of geodata
- Common methodology must be model based
- Coherent information models
- INSPIRE-models are directly used or as inspiration for structure
- Most possible automatisation in the development

Modelling Concept and Inspiration

For the Basic Data Program, these forums and activities are to/will be implemented:

- Model Rules, common for all Basic Data
- The Data Distributor
- Governance setup to govern the processes



Green: Geodata

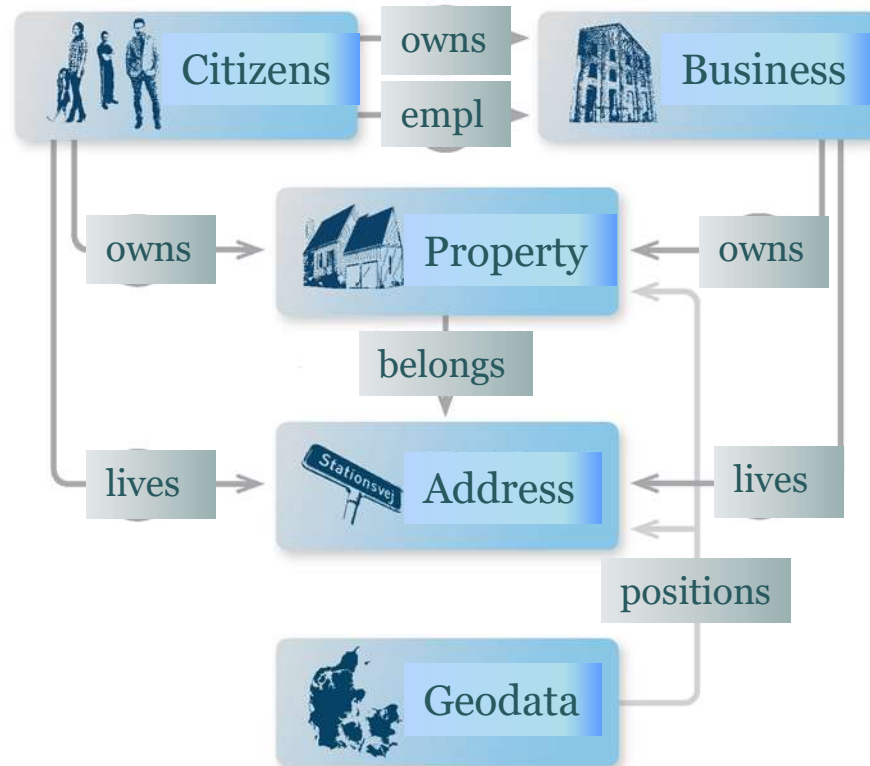
Cyan : Basic Data

Yellow: INSPIRE modelled geodata and basic data

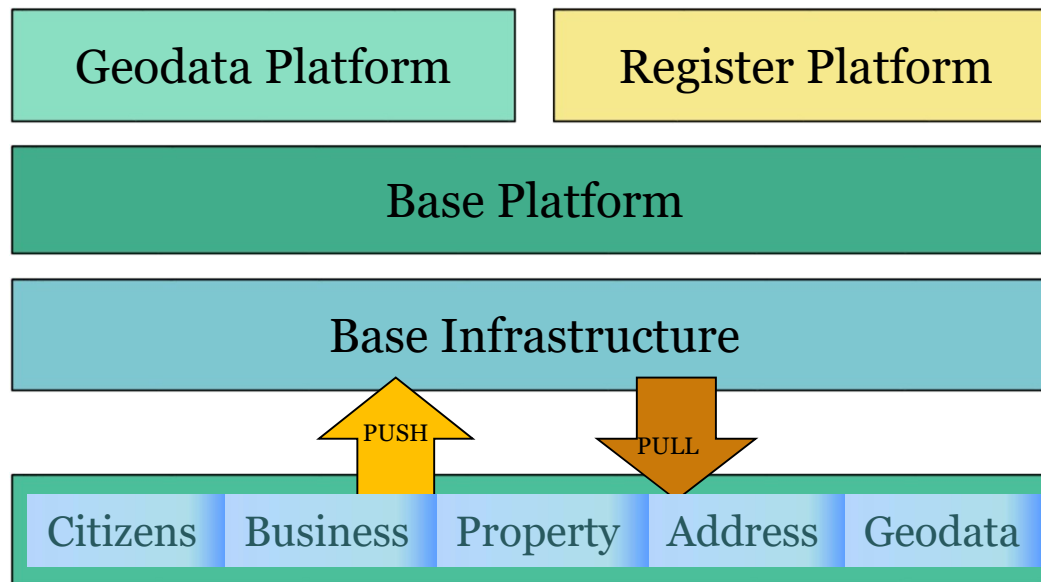
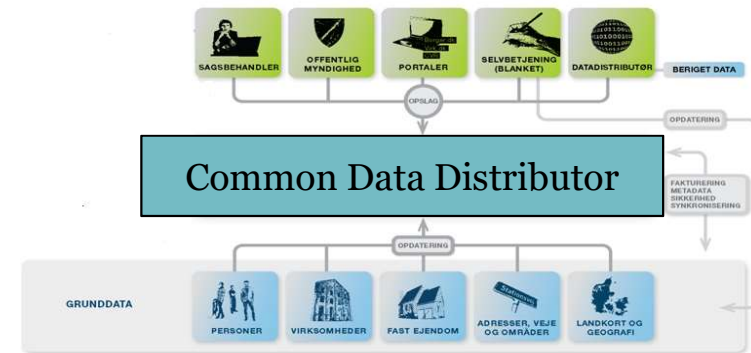


Public data: Basic Data

The Public Sector's Basic Data is Information on



Common Data Distributor



Specific
functionality

General
functionality

Operating systems,
communications

Registers and
Storages



Governance – an important element

To manage, lead and administer the processes and outcome some groups of decision makers has been put up:

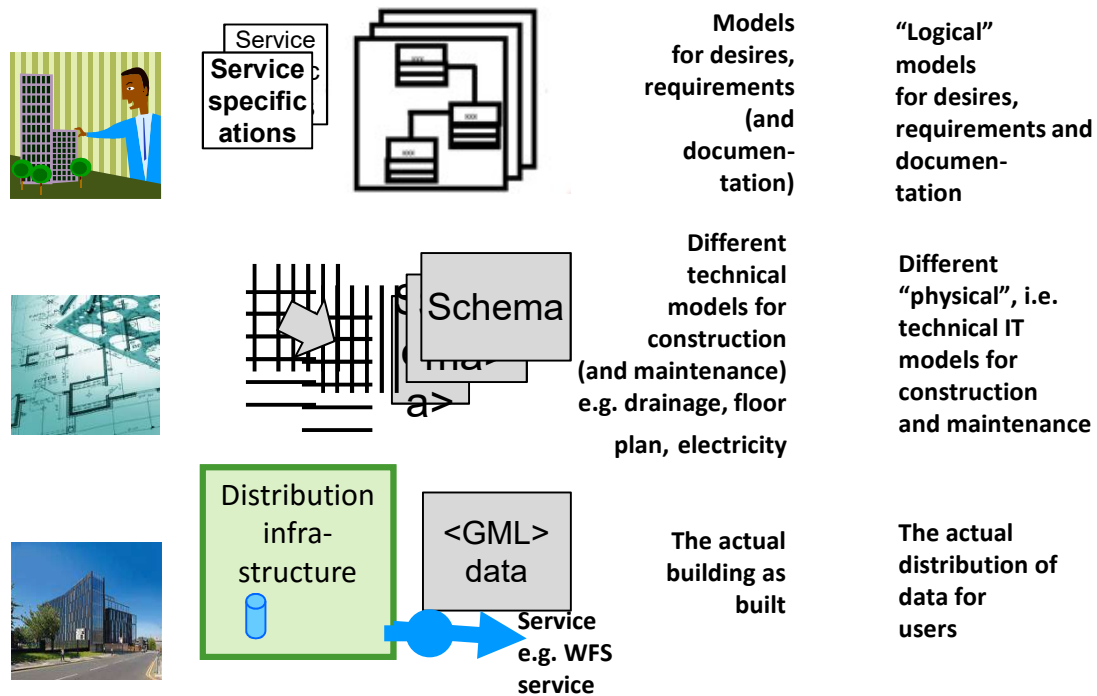
- A board of directors (head of agencies) of the **Basic Data Program**
- A program steering committee (head of functions)
- An architecture group (EA architects)
- Several sub-program steering committees
- Several project groups within every sub-program
- Agency internal coordination groups



Model-based development as concept

Building

Distributing data



Model Rules, (general 1)

- The models must be made in UML
- The models must be distribution models
- The models must be conceptual
- Data models must be modelled as UML classes
- UML models must be organised in packages
- Model entities must be reused
- UML models must be modelled fully (associations, names, roles, and multiplicity)

Enumeration: Expected static values

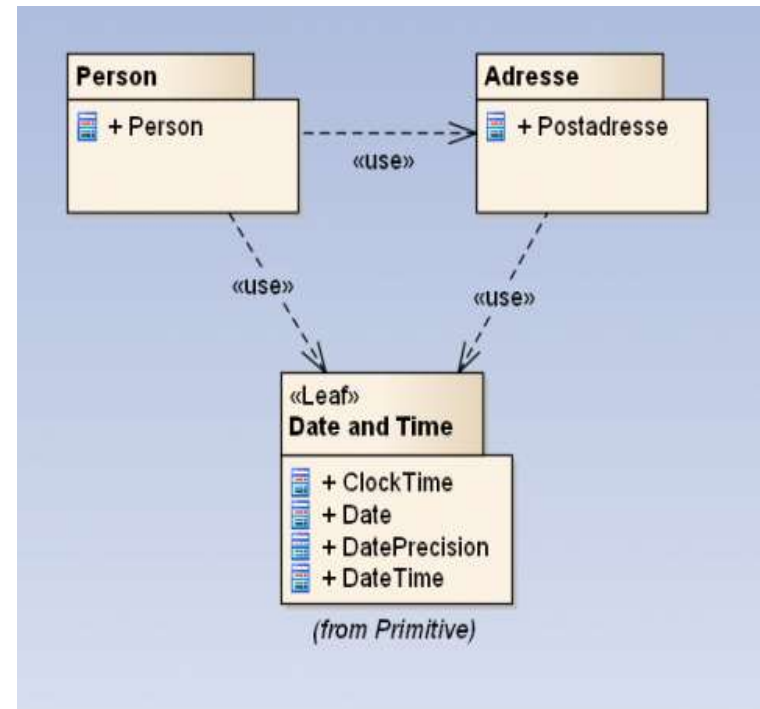
CodeLists: Dynamic adoption of new items

Classification: Stored in taxonomies



Model Rules, (general 2)

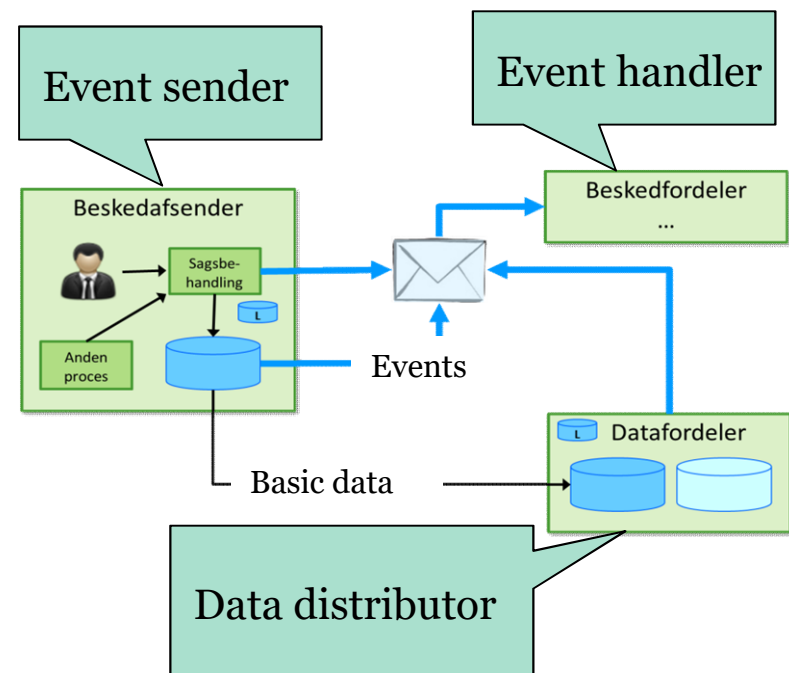
- Standardised data types must be reused (based on ISO 19103 and ISO 19107 Harmonised Models)
- UML stereotypes must be used
- Language rules must be used
- The data model must be documented (UML of course)
- References to classifications, business models and organisation models must be used



Model Rules, (general properties)

- All model entities must be modelled with unique persistent identifiers (*UPI*)
- All models must be modelled with an object *STATUS*
- All models must be modelled with bi-temporal time stamps: *VALID_FROM*, *VALID_TO* and *REGISTER_TIME_FROM*, *REGISTER_TIME_TO* and who is the responsible *ACTOR*

- All model entities *should* be supporting event handling



Further Work

- **Some high level modelling issues are missing:**
- The modelling of cross-domain concepts (terms and semantics)
- The modelling of concrete business use cases (public administration)
- The modelling and implementation of (a set of) registry covering: concepts, code lists and an authority register

Parishes,
Municipalities,
Counties,
Districts,
Regions



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