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Specifications for Establishing a Road Data Infrastructure

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Programme

- The information refinement process
- Some characteristics of the EuroRoadS specifications
  - choice of basic standards
  - reference systems
  - data exchange
- Experiences from practical use of the specifications
- Some ideas for deployment and development

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The EuroRoadS project

- **Scope**
  - To lay the ground for the creation of a pan-European standardised digital road data infrastructure built on identified user requirements.
  - To simplify exchange of digital road data within and between different countries
- **The delivered specification framework consists of**
  - Road network information model
  - Definition of core European road data
  - Specification of a data exchange model and format
  - Meta-data catalogue
  - Terminology catalogue
  - Quality model

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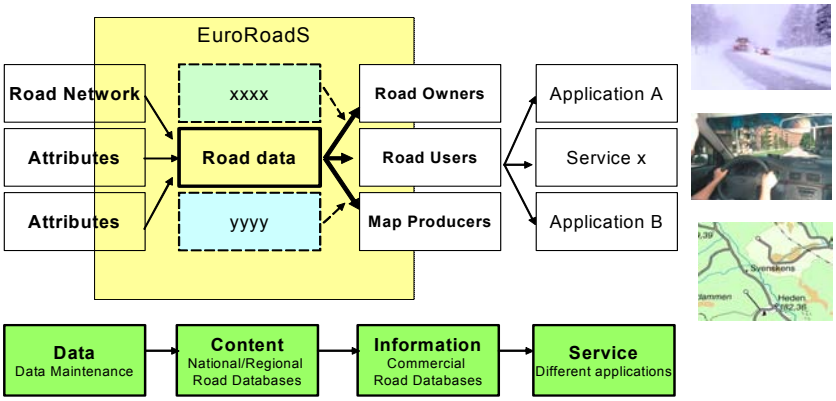
Positioning of the specifications

The information refinement process



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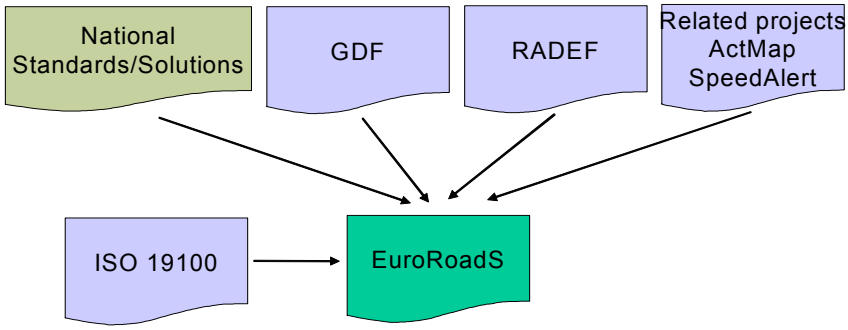
Characteristics of the specifications

Choice of basic standards



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Characteristics of the specifications

Reference systems

- Historically common to use linear referencing methods
- If road data is to be used together with other georeferenced spatial data it is necessary to be able to use geodetic reference systems

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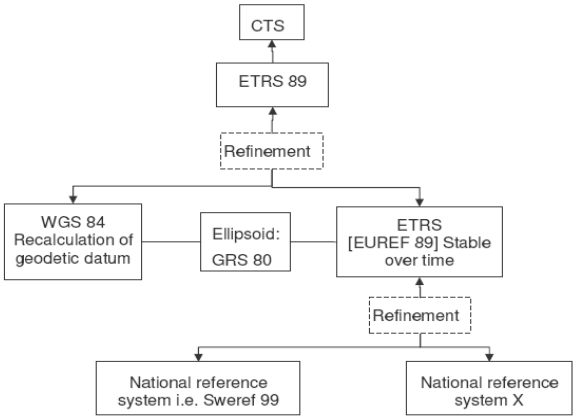
Characteristics of the specifications

Direct reference systems



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Characteristics of the specifications

Data exchange

- **Important directives**
  - The road data exchange format must be able to handle both complete data sets and just data changes (transaction handling)
  - It is important to solve border linking (the merging of adjacent road datasets)

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Characteristics of the specifications

Data exchange

- **Road network information model**
  - Based on application schema rules from ISO 19100
  - In practice - create application schemas using the UML language defining classes that represent the various concepts from the EuroRoadS domain.
- **EuroRoadS exchange format**
  - Providing data - each content provider will need to transform their data according to the EuroRoadS representation.
  - Using data - users may also need to transform data received, in the EuroRoadS format, according to their own data model.
- **Unique universal identifiers (UUID/GUID)**
  - Unique universal identifiers (UUID/GUID) are used in the EuroRoadS specification framework to secure that each element can be properly addressed.

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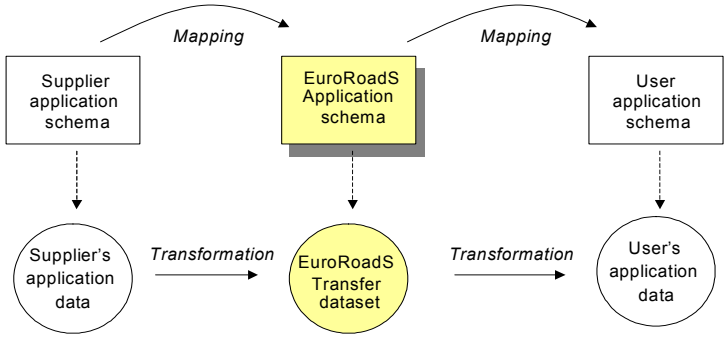
Characteristics of the specifications

Data exchange



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Characteristics of the specifications

Data exchange

- Core European road data – Road attributes and features
  - **Mandatory attributes**
    - *Geometry, Universal ID (UUID/GUID), Form of Ferry, Form of Node, Form of Way, Functional Road Class*
  - **Optional attributes and features (common decriptions)**
    - Examples;
      Border Node Information, Manoeuvre, Grade Separated Crossings, Number of Lanes, Junction Information, Restrictions for Vehicle, Road Number, Road Width, Road Surface, Speed Limit, Steep Gradient
  - **User defined attributes and features**
    - Possibility to define and supply unique data

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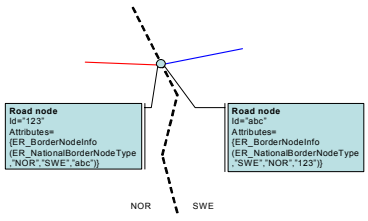
Characteristics of the specifications

Data exchange

- **Border nodes**
  - Agree on geometry for the border (neighbours need to communicate and agree with each other)
  - Identify roads that cross the border
  - Add a node attribute to each border node



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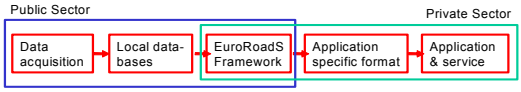
Experience from practical use

Demonstrations in the EuroRoadS project

- **Objectives for the test and verifications**
  - Demonstrate and validate the use of the EuroRoadS specification framework.
  - Demonstrate a complete data chain from data acquisition to final services.
  - Support dissemination and networking through concrete implementation of results.



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Experience from practical use

Demonstrations in the EuroRoadS project

- **Some lessons learned**
  - EuroRoadS framework documents generally - high quality and consistent
  - Concepts of the information model - well described
  - EuroRoadS exchange format (GML) for complete data sets covering large areas leads to very large data volumes.

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Experience from practical use

Demonstrations in the EuroRoadS project

- Information model for network description offers a lot of flexibility and liberty for usage by supplier
- Processing steps and effort depends on
  - The supplier information model and the target application model
  - Data user efforts are increasing as soon as provided data have to be changed for the use in the final application

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Experience from practical use

STBR II - Subproject WP 4-1

Road Information Exchange System (Barents Road Database)

- **Some lessons learned and some conclusions**
  - Complex mapping needed - the ability to map existing data into the extended EuroRoadS specifications differs between participating countries.
    - This will affect the quality and usefulness of data.
    - Delivery of updates will probably be difficult.
  - Is important to do further work on the harmonisation.
    - It is important remove any uncertainties regarding mapping of data.
  - The INSPIRE directive will probably lead to that all European countries will harmonise existing definitions in the national databases.

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Experience from practical use

STBR II - Subproject WP 4-1

- The level of detail and accuracy differs in the data deliverer.
- There is a need to harmonise policies for data distribution and the rights to use the data.
- The question of the role of public authorities in the data refinement has to be addressed.
  - Historically public authorities have covered the entire chain from data capture to end-user applications.
  - In the future public authorities probably will focus on the role as content provider.

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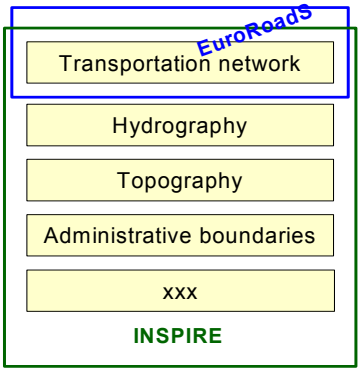
Deployment and development

EuroRoadS contribution to INSPIRE



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Deployment and development

Need for extensions and development

- **Core data extensions**
  - Added features and clarified definitions from the Barents-project is one input for needed updates of the EuroRoadS specifications of core data.
- **Reference systems**
  - To make road data useful to third party map providers it is in most cases important to be able to use some “map-based on-the-fly location referencing”.

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Thank You for Your attention!

Questions ?

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