Transport Networks [TN] – Annex I lessons learned

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This presentation

• An overview of the process used in developing the TN data specification.
• This includes key decisions and lessons learnt.

• Transport Networks is one of the largest if not the largest INSPIRE theme.
• It covers four major sub themes: Road, Rail, Air & Water Transport.
TWG TN

- Alain Chaumet
- Darja Lihteneger [EC]
- Jordi Escriu Paradell [Edit ph2]
- Keith Murray [Fac]
- Lars Wikstrom [Edit ph1]
- Dave Russell/Mark Lepage
- Ulf Sandgren
- Ward Ver Linden [Edit ph2]

- France
- JRC INSPIRE Team
- Spain
- UK
- Sweden
- UK
- Sweden
- Belgium

Small team – but a very good balance of skills and experience.

Phase 1
The Editor had to withdraw at the halfway stage

Phase 2
Two team members completed v2.00 and v3.00 work.
Drivers & Applications

Directive or Policy
- TEN-T
- Pollution eg Noise
- Open Skies
- Clean Air
- RINF
- Marine

Application
- Policy
- Planning
- Environment
- Operations
- Emergency response
- Capacity – economy
- Emissions
- Travel – multimodal
- Routing
Stages to completion

• Kick Off Meeting - Feb 2008
• Review & Assess Reference Material
• Use Cases
• User Requirements
• Generic Network Model
• V1.00
• V2.00
• V3.00 – Oct 2009
Kick Off – Feb 2008

• Given the wider scope of transport features it was decided at the Kick Off meeting that we should **restrict the scope to reference objects only**.

• Any objects that were more **application oriented would still be able to be added when the demand was sufficient** and using the same model (data specification maintenance).

• **If we had not have made this decision – we may never have finished!**

• **Lesson:** be very clear about the scope of the work at the start.
Review & Assess Reference Material

• The TWG had 67 reference documents to review.
• Most of these were for road data.
• The checklist took time but it was essential.
• The outputs were assembled into a single spreadsheet which formed the basis for the new specification (selection of common features).

• **Lesson**: slow going at the start – but existing material and best practice “is the foundation”.

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Use Cases

• There were virtually no use cases (not surprising since there is little experience using cross European data).

• The TWG formed 3-4 representative use cases:
  – Prepared within the team
    • UC1: EU: Noise mapping
    • UC2: National: Environmental Impact Assessment (TEN-T)
    • UC3: Citizen: Journey Planning
    • UC4: Private Sector: Speed alert
  – These relied on team experience and the material provided.

• **Lesson:** it is an iterative process but expert knowledge in the team proved essential.
User Requirements

• While there were many statements [48] – few were of value to the team as real requirements [8].

• Some of these were fed into the Use Cases and also used to validate assumptions as well.

• **Lesson:** users will find it hard to distinguish between today’s operating environment and how they might see it working in future.
Generic Network Model

- It was obvious from the start that the four themes were “networks”
- A **Generic Network Model** was developed in line with the Generic Conceptual Model.
- This was then adapted to form a Transport Network Model.
- Each of the four themes used this same foundation.

**Note:** The Generic Network Model is also available for other themes - eg it was used by HY – and can be used by Annex III eg Utilities.
Network representations

The three main alternative kinds of network representation can work together.

This would allow a user (or users) to use and exchange information between the “different views” as desired.

Ideally all the representations will be harmonised. Harmonisation will require a defined level of geometric fidelity/integrity as well as a level of semantic harmonisation and cross referencing.

The nodes (implied or explicit) should also be sufficiently coincident.
V1.00 Preparation & Review

- Note: The Water Transport theme relies on and reuses the HY theme (by reference).

- First version for internal EC review.
- Fortunate for have feedback from DG-TREN

- It was obvious that non technical readers found the document hard to understand.
V2.00 Preparation

- Major revision for public version of the document.
- Chapter 4 extended to provide more contextual explanation.
- This version involved a lot of hard work.
- Illustrations added.
Comment Resolution Workshop

• LMO-SDIC comments – still some confusion regarding the scope and purpose of the specification.

• Comment Resolution Workshop with representatives from Road, Rail and Air communities.

• Cableways added as an extra sub-theme

• Valuable feedback and all comments resolved.
INSPIRE Generic Conceptual Model D2.5

Generic Network Model

Common Transport Application Schema

Road Transport Application Schema
Rail Transport Application Schema
Water Transport Application Schema
Air Transport Application Schema
Cableway Application Schema

INSPIRE Transport Network Data Product Specification D2.8.1.7
Data scope: spatial & non-spatial

Widely reused - widely referenced

Application specific - referenced

Loose coupling – linkage

Timetable

Slika: Loose coupling – linkage

Spatial

Organisational Business Data

Data scope: spatial & non-spatial

In scope now or future

Not in scope

Organisational Business Data

Spatial Objects

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Reuse geometry by linking features

Figure 8 – Example of the use of Link, Node, Link Sequence and Link Set
Illustration – Example of use of elements forming the Road Transport Network

**Figure 17** – Overview of the main Road Transport Networks objects
Illustration – Example of use of elements forming the Rail Transport Network

Figure 22 – Overview of the main Rail Transport Networks objects
5.4.2.3 Enumerations and code lists

**Figure 23 – UML class diagram: Railway Transport Networks Enumerations and Code lists**
Reuses an existing INSPIRE compliant river network
Illustration – Example of use of elements forming the Air Transport Network

Figure 39 – Overview of the main Air Transport Networks objects
Conclusions – for Annex II&III

• Invest time in understanding the main parts of the Generic Conceptual Model.
• Be clear about the scope at the start
• Build in future perspective
• Take it step by step
• Do not be put off by hard work
• Make the specification accessible by general users – not just experts
• Enjoy the work – it is rewarding!
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...download from data.gov.uk
TN TWG & HY TWG in serious discussion in Maribor

Thanks for your attention ....