Open standards, Open data, Open-source tools: their governance and future

FOSDEM 2024 - Railways & Open Transport
Agenda

- Let’s meet!
- Open standards & specifications
- Open-source tools
- The future of open source for Railways & Open Transport
Let’s meet!
Let’s meet! I am Tu-Tho

Project Manager & Expert Contributor

Paris, France

Building communities and their inclusion, leveraging technology and collective intelligence

French, English, Vietnamese, Spanish, Japanese

tutho.thai@itxpt.org
tuthothai
ITxPT: Building interoperability

**WHO WE ARE**

The **non-profit association** that enables an **open architecture, data accessibility and interoperability** between IT systems. The members of ITxPT develop the IT architecture **for public transport** and other mobility services together, **based on standards and best practices**.

**MEMBERSHIP-BASED**

- 160+ members in 28 countries
- PTA, PTO, Industry and Associations

**WHAT WE DO**

- An architecture for interoperability
- A community for innovation
- A label for compliance
Let’s meet! I am Brede

Product Owner

Oslo, Norway

Using standardisation as a tool, an open-source evangelist, building community and infrastructure for the future

Norwegian, English

@ brede.dammen@entur.org

LinkedIn: brededammen
Entur: paving the way for open data

**Who we are**

Non-profit tech company that enables an open infrastructure and open data accessibility for mobility. Our mission is enabling growth in public transport and bringing mobility services together, based on open-source, standards and best practices.

**Publicly owned**

Owned by Ministry of Transport

**What we do**

- Building national infrastructure platform
- Open-source thinking when relevant
- All major travel apps in Norway use our services
Open Standards & Specifications

How open data is supported by standardisation
Open Standards & Specifications
Placing Railways & Open Transport

[Diagram showing various components of a railway system, including vehicles, public transport operators, authorities, and data integration through standards like CEN/NeTEx-SIRI, ITxPT S03, and NordicWay (SCALE).]

Color legend:
- Abcd - ITxPT work (Specifications & Projects)
- Efgh - CEN standards
- Ijkl - Standard to be defined
- Mnoo - Other specifications and non-standardised formats for peer-to-peer data exchange.
Placing Railways & Open Transport

Sporadic feedback

PTA/PTO

ENTUR

Planning systems
~60 feeds

Real-time systems
~60 feeds

Manual edits by PTA's

NeTEx Nordic profile

SIRI (ET, VM, SX)
Nordic profile

NSR

National Stop Registry

Timetable database

Open data
NeTEx
SIRI
GTFS
GTFS RT

OpenTripPlanner
Trip calculation

OpenTripPlanner currently provides about 1 billion responses per month.

NAP
Data flow with blocks

Planning systems ~60 feeds

PTA/PTO

Real-time systems ~60 feeds

ENTUR

Manually edits by PTA’s

National Stop Registry

NetEx
Nordic profile

Timetable database

SIRI (ET, VM, SX)
Nordic profile

Examples of closed data can be:
- Blocks
- Dead-runs
- Unpublished lines

Explicit access is granted by the source data owner.

Closed data
NeTEx

FARA
DATA
TRAFFIKK A.S
Trapeze

Manual edits by PTA’s
Open-source tools

NPLAN, Validation suites & Open Trip Planner (OTP)
Open Trip Planner (OTP)

What is it?

- A family of open-source software projects
  - Passenger information
  - Travel routing
  - Created collaboratively

Scope & Input details

- Multimodal trip planner
  - Transit (i.e., conventional public transport)
  - Shared mobility (i.e., alternative modes)
  - Walk, bike, car

- Multi-formats for input
  - NeTEx - SIRI
  - GTFS - GBFS
Open-source tools: present & future

What exists

- Open registries
  - Stop places registry (NO)
  - NAPs (data feeds)
  - Open-source data libraries
- Data creation: N-Plan (NO)
- Validation tools
  - Antu
  - Greenlight
- Station boards
  - Digitransit, Arcadis IBI, etc.

What needs to be built

- Graphical representation of NeTEx & SIRI feeds
- Convertor from NeTex to MERITS
- Validation tools to bridge Antu & Greenlight – NOT develop a new one
- Analytics tools
Your thoughts?
Thank you!

Brede Dammen

@ brede.dammen@entur.org

in brededammen

Tu-Thu Thai

@ tutho.thai@itxpt.org

in tuthothai