

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



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tuthothai



Building communities and their inclusion, leveraging technology and collective intelligence



French, English, Vietnamese, Spanish, Japanese

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



brede.dammen@entur.org



Oslo, Norway



bredeammen



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



Norwegian, English

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

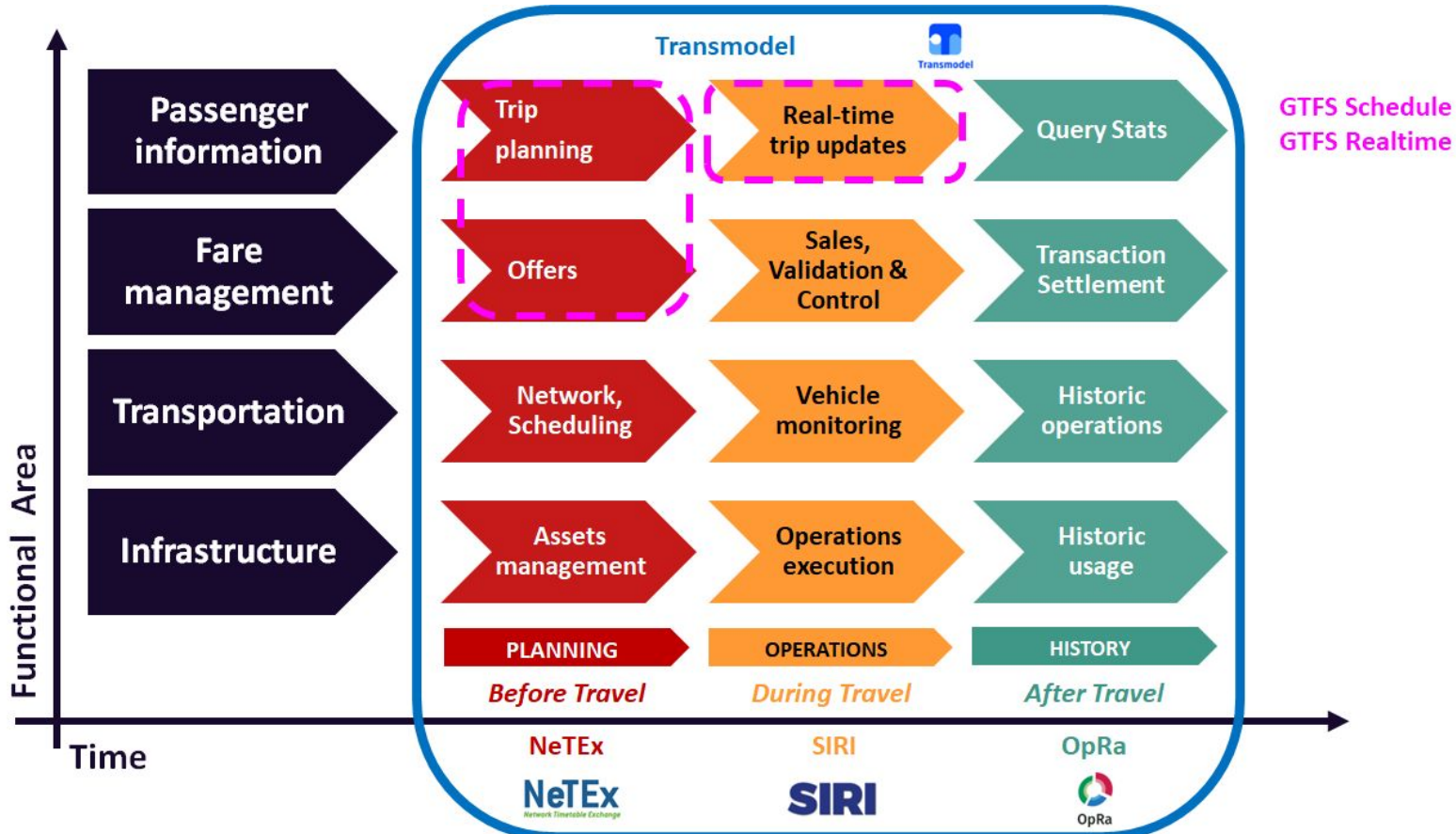


All major travel apps in Norway use our services

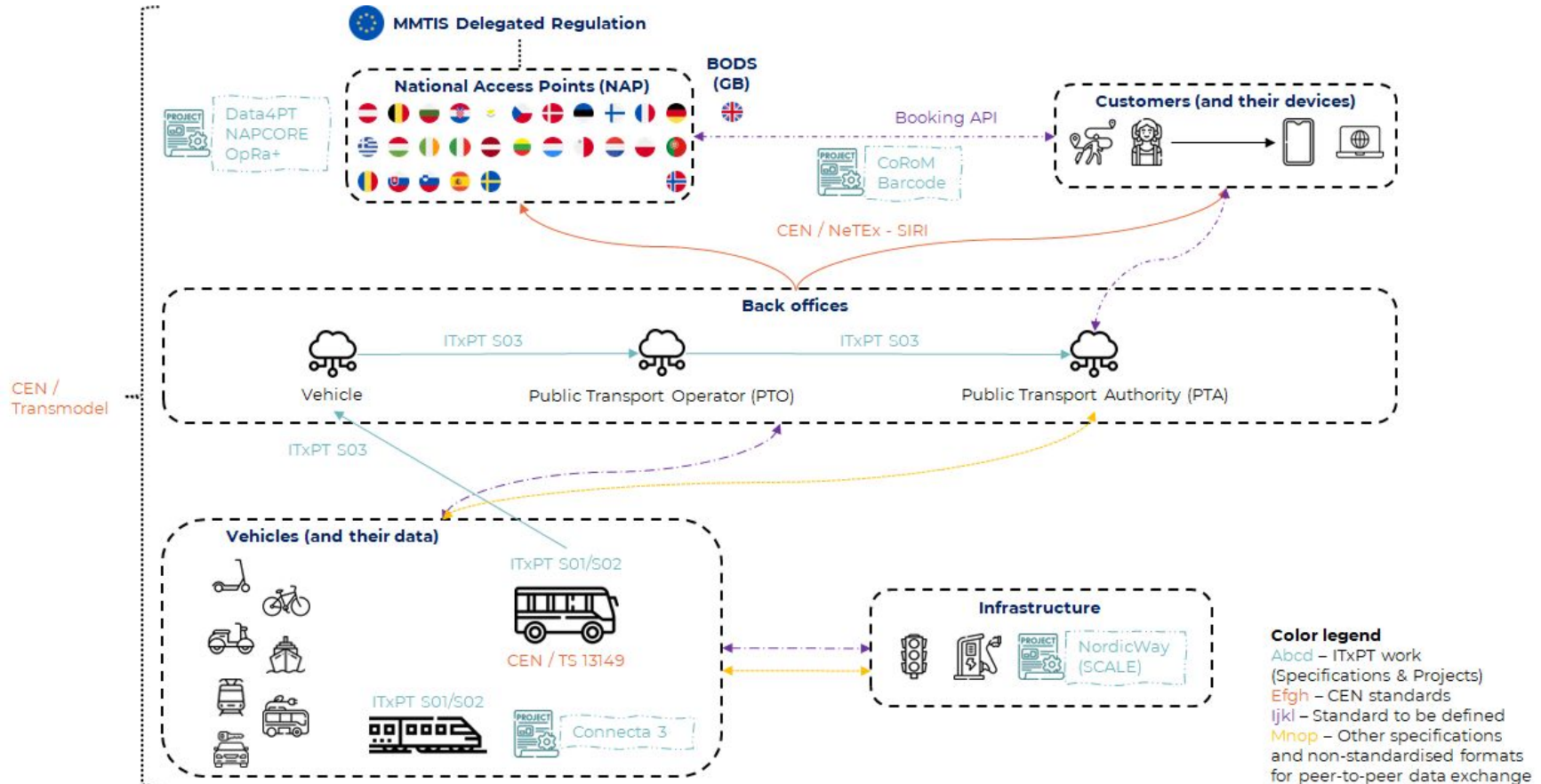
Open Standards & Specifications

HOW OPEN DATA IS SUPPORTED BY STANDARDISATION

Open Standards & Specifications



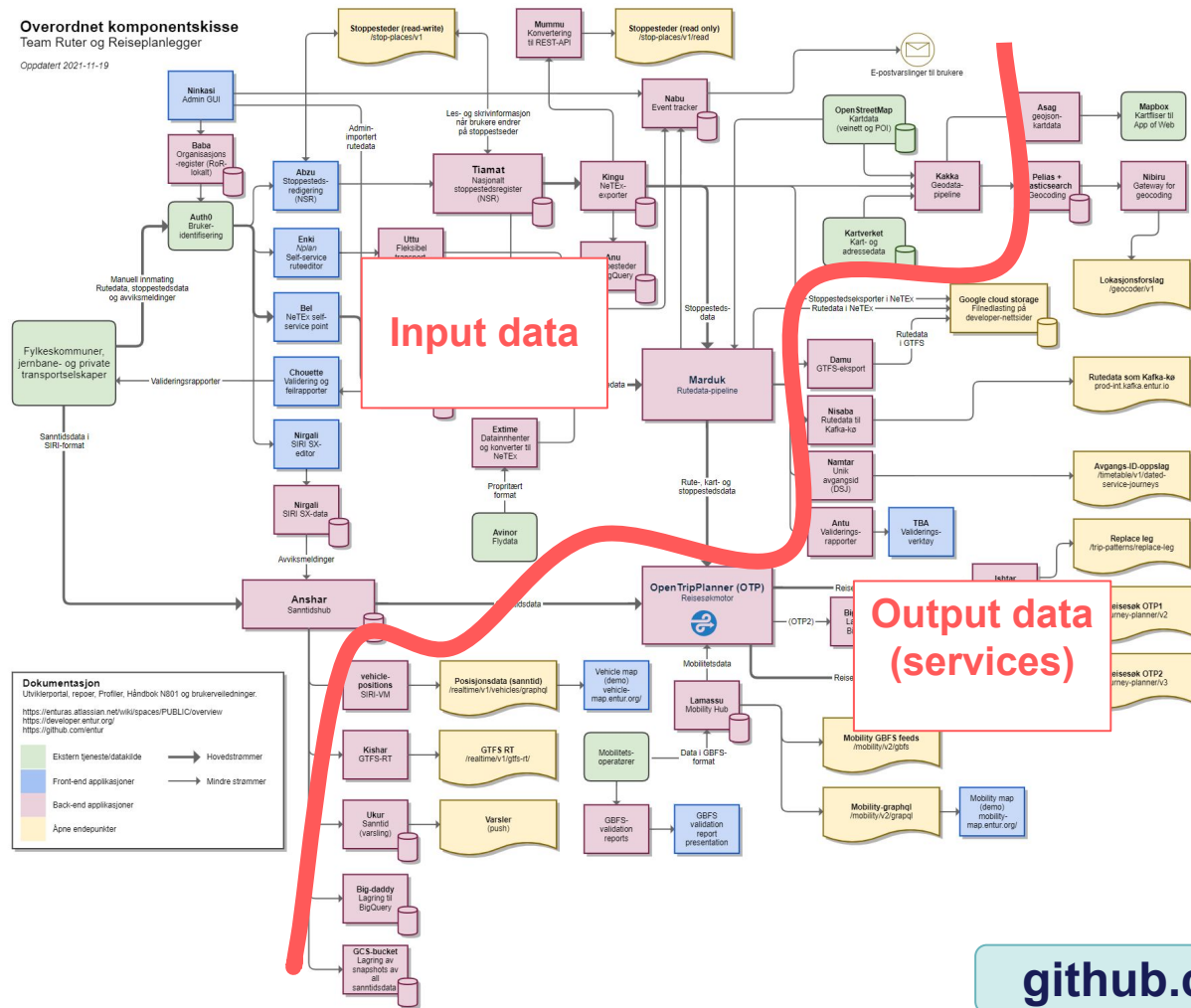
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Overordnet komponentskisse

Team Ruter og Reiseplanlegger

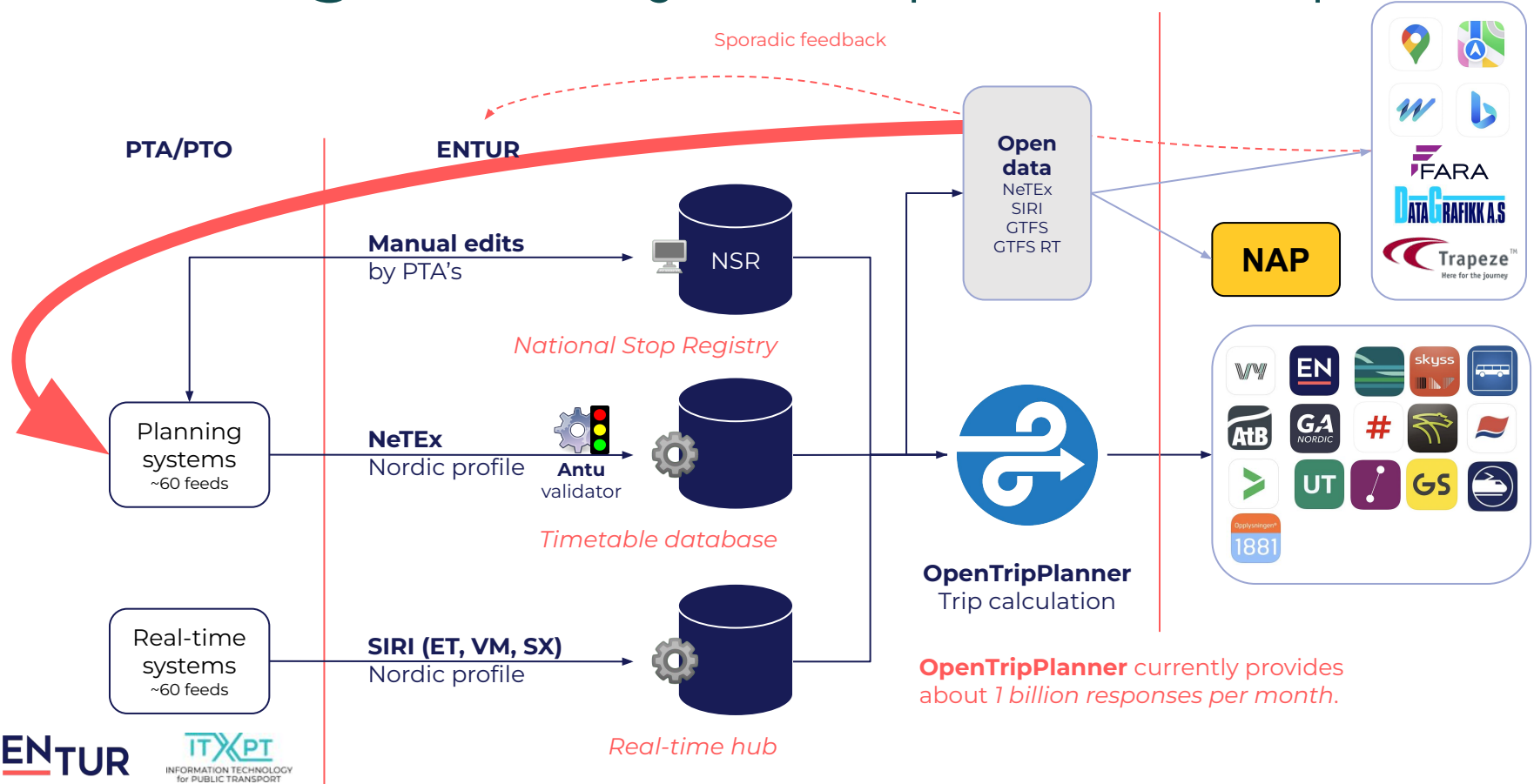
Oppdatert 2021-11-19



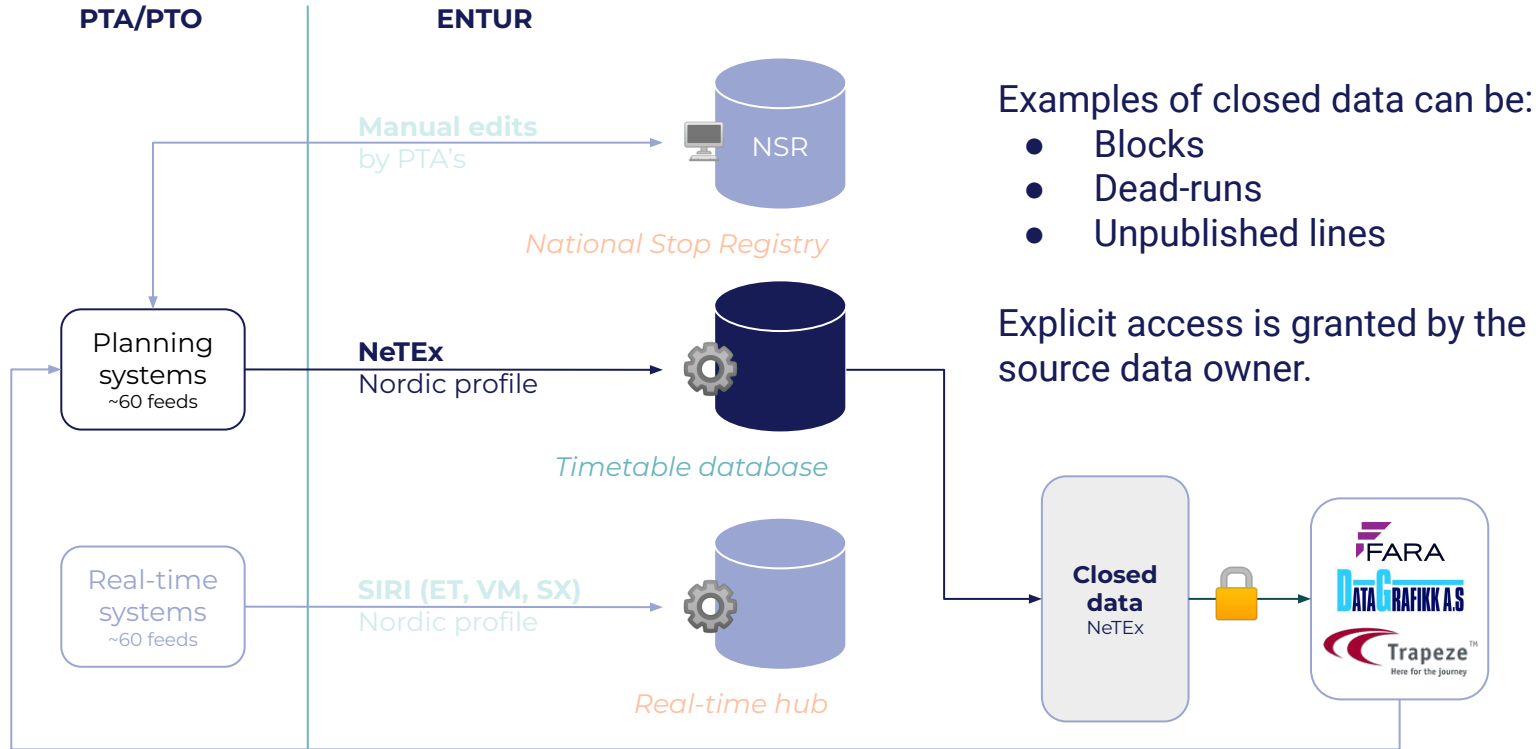
Dokumentasjon
 Utviklerportal, repot, Profiler, Håndbok N801 og brukerveiledninger.
<https://entur.atlassian.net/wiki/spaces/PUBLIC/overview>
<https://developer.entur.org>
<https://github.com/entur>

- Ekstern tjenestefatidatke → Hovedstrømmer
- Front-end applikasjoner → Mindre strømmer
- Back-end applikasjoner → Mindre strømmer
- Åpne endepunkter → Mindre strømmer

Placing Railways & Open Transport



Data flow with blocks



Examples of closed data can be:

- Blocks
- Dead-runs
- Unpublished lines

Explicit access is granted by the source data owner.

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!

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