

TN-ITS General Assembly

Showcase on TN-ITS implementation in Finland



Digiroad



Outline of the presentation

- **Digiroad – Finnish national road database**
 - Some basic facts
 - Data sources and content
 - Maintenance and deliveries
 - System architecture
- **TN-ITS Pilot Service**
 - Design principles
 - Safety features available at the service
 - Overall architecture of the system
 - Output
 - Some questions and findings

Digiroad – Finnish national road and highway information system: Some basic facts



- Parliament made a decision in 2000 to establish the system
- Project phase in 2001 – 2004
- Digiroad maintenance and service started in 2005
- Planning for the second generation system started in 2012
- and it is almost finished



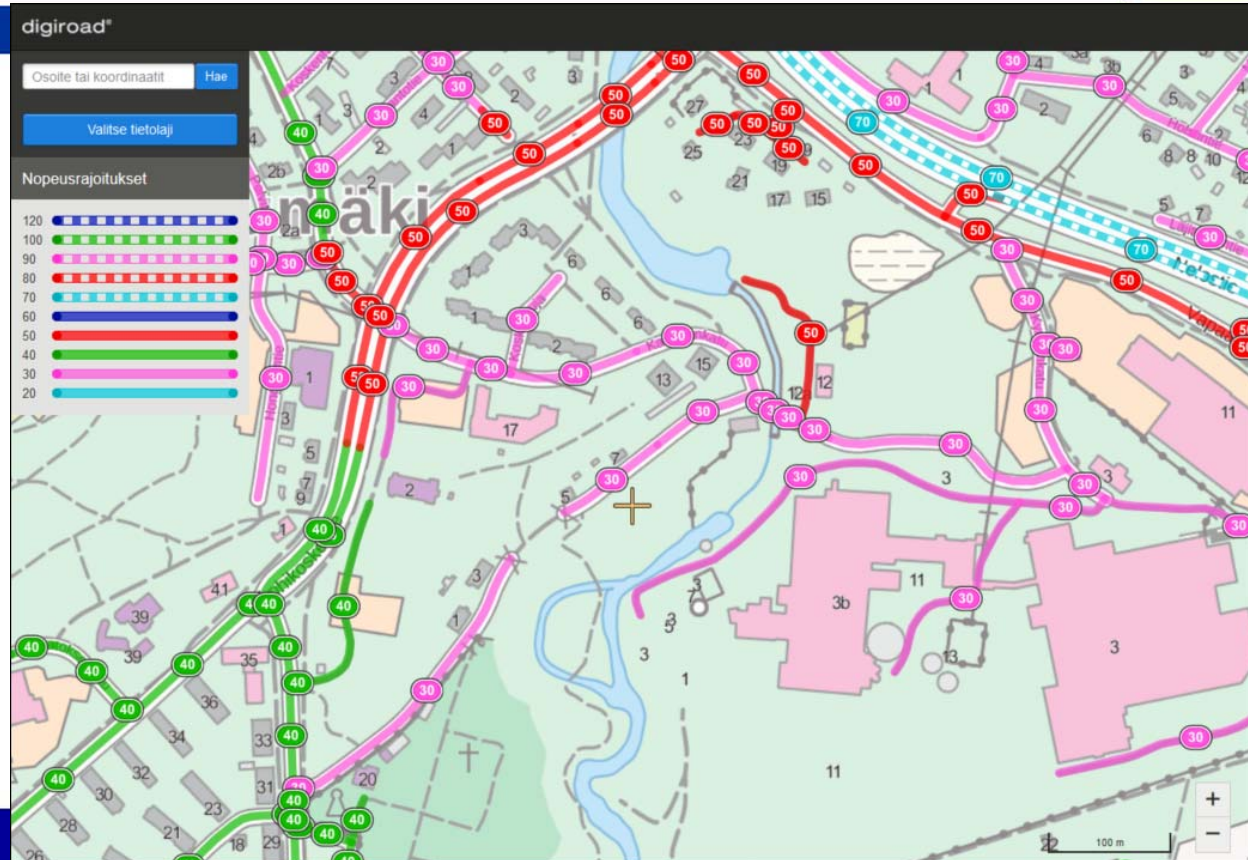
Digiroad – Finnish national road and highway information system: Data sources and content

- **Sources**
 - Geometry comes from National Land Survey
 - Most attribute updates come from FTA and municipalities
- **Data content**
 - Drivable roads 483,000 kilometres
 - Centre line geometry
 - Attributes such as restrictions, FRC, FOW, names, addresses, bus stops etc.
 - Relationships such as turning restrictions

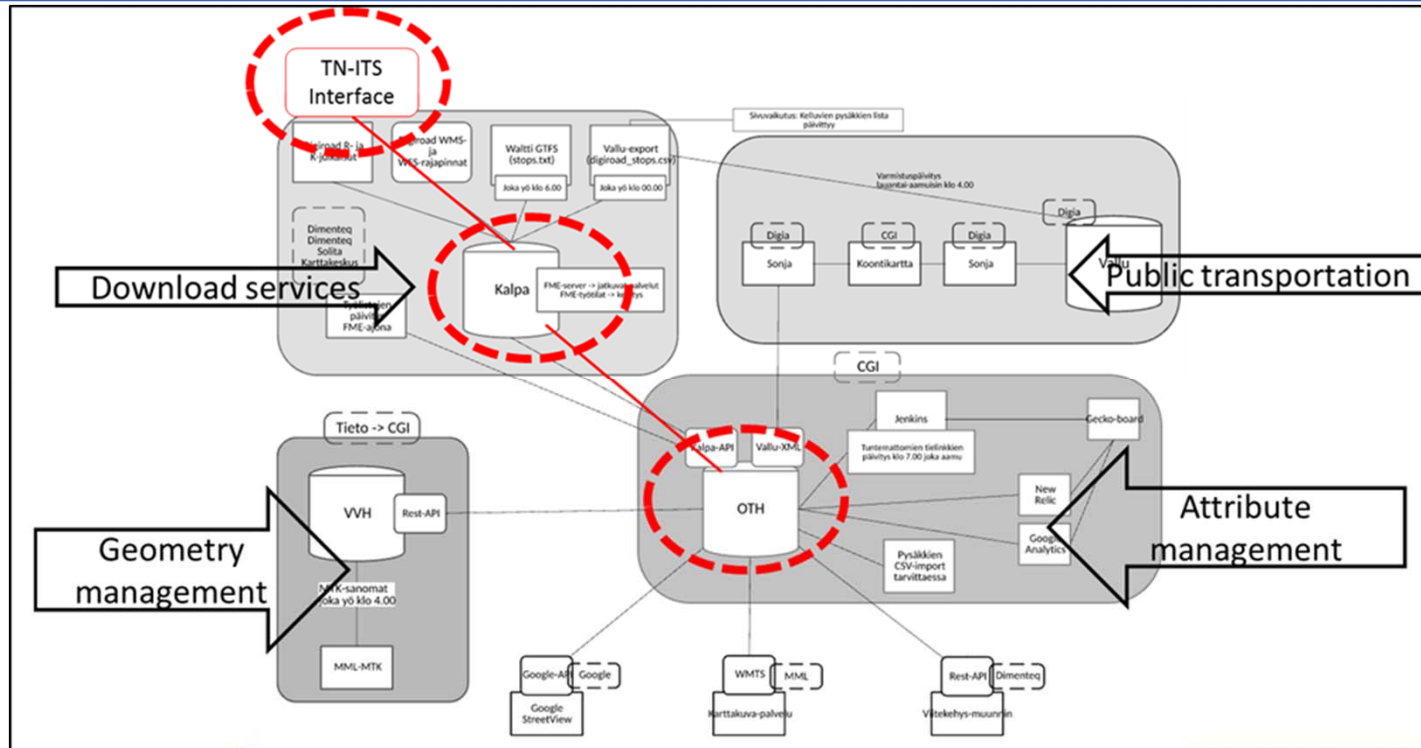


Digiroad – Finnish national road and highway information system: Maintenance and delivery

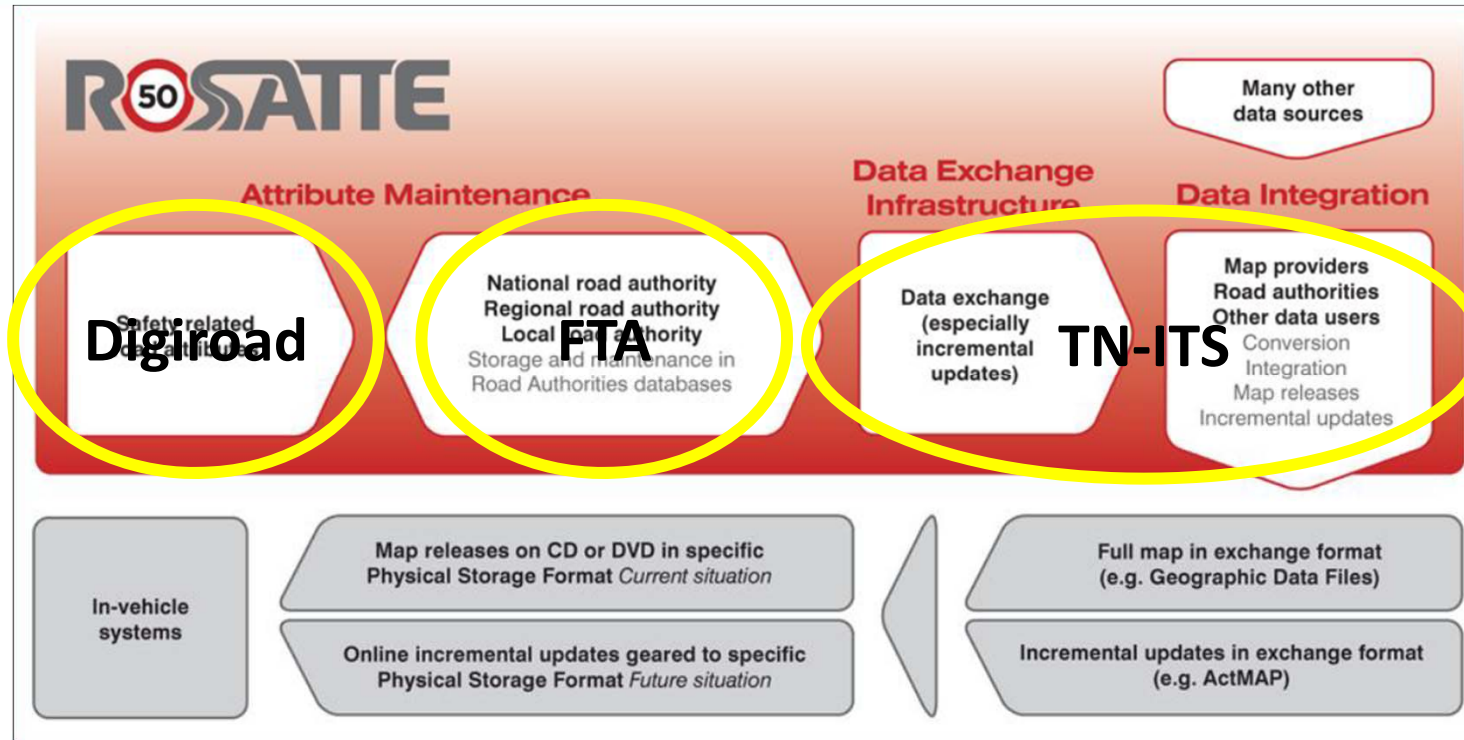
- Attribute maintenance with an application running in web browser
- Geometry maintenance is based on Esri technology
- Deliveries 4 times per year



Digiroad – Finnish national road and highway information system: System architecture

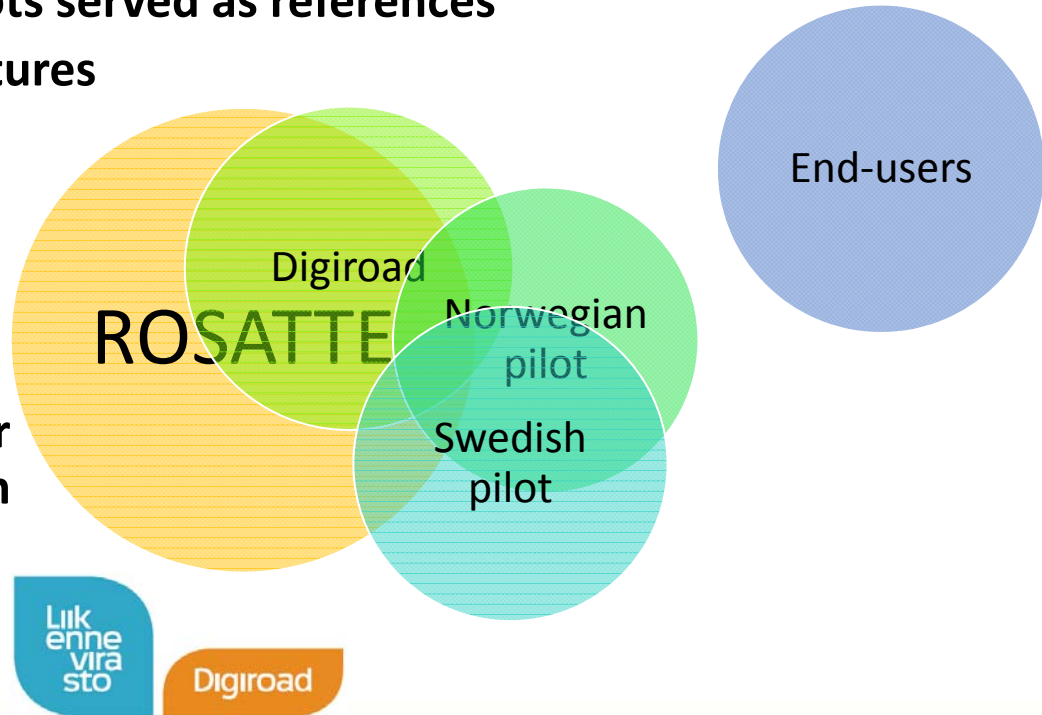


TN-ITS – Finnish implementation



TN-ITS – Finnish implementation: Design principles

- Swedish and Norwegian pilots served as references
- At least the same safety features should be delivered as in the reference pilots
- New applications should be based on open source
- Developed source code will be available to the other members of the ITS Platform
- Data will be delivered under CC BY 4.0

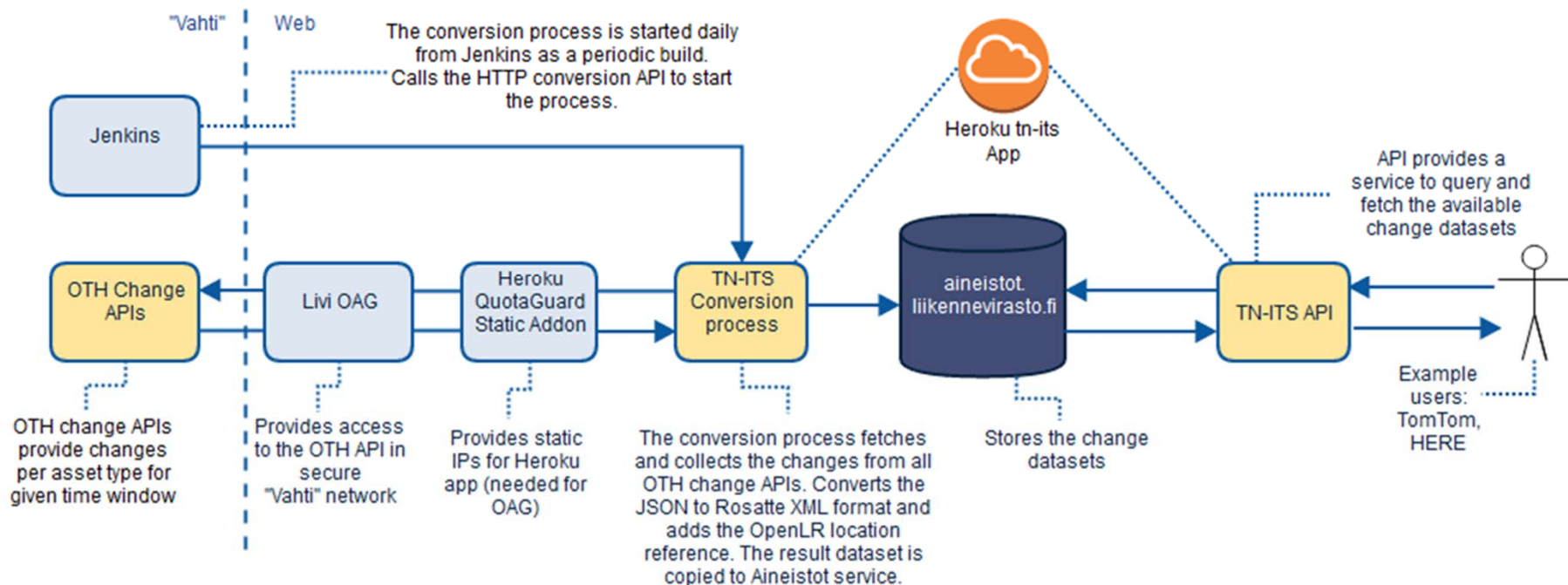


TN-ITS – Finnish implementation: Safety

Features available at the service

Feature	Use
Road link geometry and nodes	Open LR and additional information
Digiroad Link ID	Foreign key for referring to Digiroad database, Inspire Linear Location
Functional class [=FRC]	Open LR
Direction of traffic flow	Open LR and additional information
Road link type [= FOW]	Open LR
Road name	Additional information (will be available later on)
Road number	Additional information (will be available later on)
Speed limit	Safety feature
Maximum allowed restriction	
- total weight	Safety feature
- weight per axle	Safety feature
- height	Safety feature
- width	Safety feature
- length of a vehicle or articulated vehicle	Safety feature
Vehicle type	Safety feature

TN-ITS – Finnish implementation – Overall architecture of the pilot system



- **Not zeroes and ones but readable output as xml/gml**

```
<rst:UpdateInfo>
  <rst:type>Remove</rst:type>
</rst:UpdateInfo>
</rst:updateInfo>
<rst:source>Regulation</rst:source>
<rst:encodedGeometry>
<gml:LineString gml:id="98876de4-f746-4811-bbe1-4e9e649fe318" srsDimension="2">
  <gml:posList> 25.105317849595767 60.40605439846871 25.10522893296367 60.406065014398926
</gml:posList>
</gml:LineString>
</rst:encodedGeometry>
<rst:type>RestrictionForVehicles</rst:type>
<rst:properties>
<rst:SafetyFeaturePropertyValue>
  <rst:type>MaximumHeight</rst:type>
<rst:propertyValue>
  <gml:measure uom="cm">320</gml:measure>
```

TN-ITS – Finnish implementation: Some questions and findings

- Do we need to review the Rosatte specification?
- Is there room for national extensions to Rosatte specification?
- Release cycle of 24 hours for the update datasets is feasible
- Current general goal to release the whole Digiroad data content once per week could be replaced by releasing updates of all features once per day



More information

- Final report of the Finnish pilot has been published
 - Link to the document will be available later on
- More information as well by asking via email
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 - antero.karppinen@propheconsulting.com

