

EU Data Regulation – Open Multimodal Travel Data in the EU

Transport Ticketing Global 2020

Kjell-Erik B. Eilertsen

Norwegian Railway Directorate



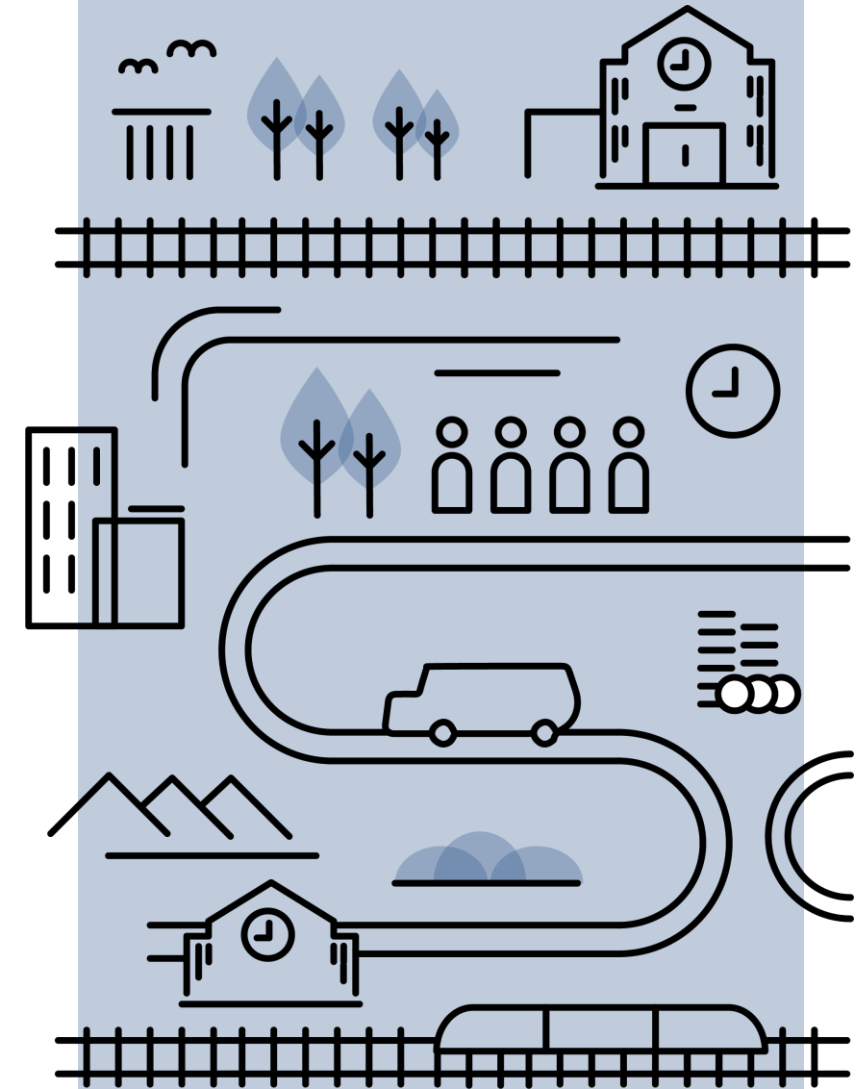
The ITS Directive

([2010/40/EU](#))

ITS = Intelligent Transport Systems

Priority areas:

- I. Optimal use of road, traffic and travel data
- II. Continuity of traffic and freight management ITS services
- III. ITS road safety and security applications
- IV. Linking the vehicle with the transport infrastructure





The Directive's Priority Actions

- a) EU-wide multimodal travel information services – [EU 2017/1926](#) (MMTIS)
- b) EU-wide real-time traffic information services – [EU 2015/962](#)
- c) Road safety traffic information – [EU 2013/886](#)
- d) Interoperable EU-wide eCall – [EU 2013/305](#)
- e) Information services for safe and secure parking places for trucks and commercial vehicles – [EU 2013/885](#)
- f) Reservation services for safe and secure parking places for trucks and commercial vehicles – On hold

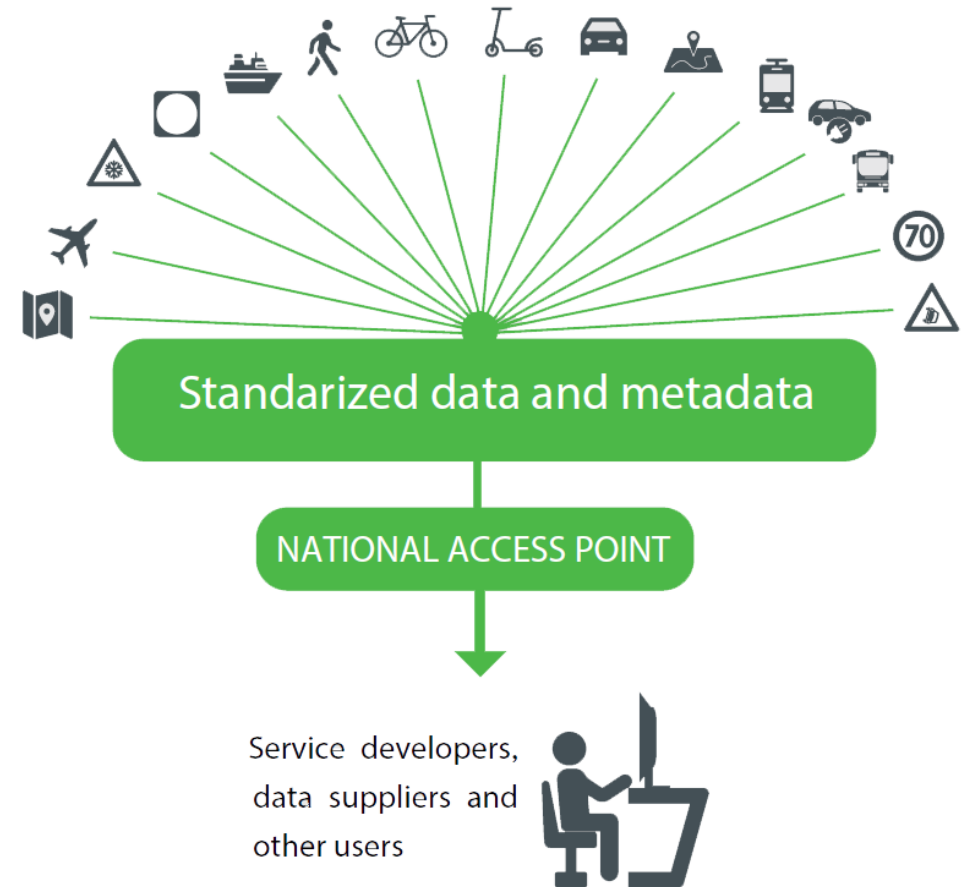
Delegated Act for Priority Action A



- Specifications in order to facilitate EU-wide multimodal travel information services that are accurate and available across borders to ITS users
- Requires each member state to set up national access points for the data
- The regulation applies to the entire transport network of the Union
 - For the first deadlines only the comprehensive TEN-T network is included ([EU 1315/2013](#))

National Access Points

- Can take various forms
 - Database, data warehouse, data marketplace, repository, register, web portal or similar
 - APIs are included
 - Centralised vs decentralised approach
 - Cooperation between countries is allowed
- Metadata describing the data (EU EIP SPA Coordinated Metadata Catalogue) and discovery services are required
- Possible to use the same NAP as for other priority actions
- The data are intended for use in solutions, not for direct use by travelers



Timetable

- For the TEN-T comprehensive network:
 - Dec 1st, 2019: Level 1
 - Scheduled transport and basic infrastructure data
 - Dec 1st, 2020: Level 2
 - Basic data for all modes
 - Dec 1st, 2021: Level 3
 - Complete data for all modes
- Dec 1st, 2023: Complete data for the entire EU transport network



Some Requirements



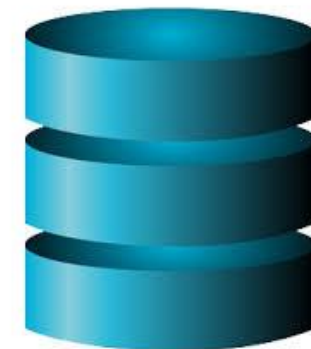
- Travel planners shall have open, known criteria for suggesting itineraries and be neutral
- Both public and private actors are required to make their information available
 - Also actors not supplying transport services themselves are included
- Any financial compensation shall be reasonable and proportionate to the legitimate costs incurred of providing and disseminating the relevant travel and traffic data
- Member states are only required to provide data already available in a machine readable format

Modalities Covered by the Regulation

- Scheduled
 - Air, rail including high speed rail, conventional rail, light rail, long-distance coach, maritime including ferry, metro, tram, bus, trolley-bus
- Demand-responsive
 - Shuttle bus, shuttle ferry, taxi, car-sharing, car-pooling, car-hire, bike-sharing, bike-hire
- Personal
 - Car, motorcycle, cycle

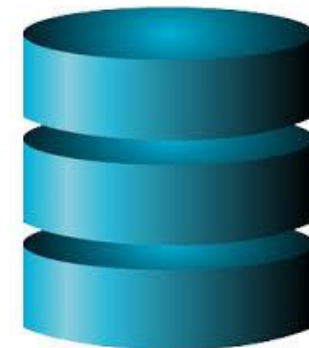


Required Data



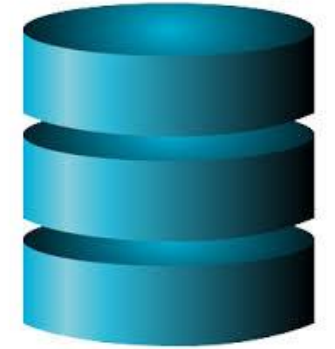
- Static data, like stop registers, timetables and fares
- Dynamic data, like real time information, available capacity
 - It is voluntary to provide dynamic data but if a country has services for the dynamic data the requirements apply
- Only information is required at this point. Ticketing services are being considered. However, necessary information for ticketing is included.

Static Travel Data (Level 1)



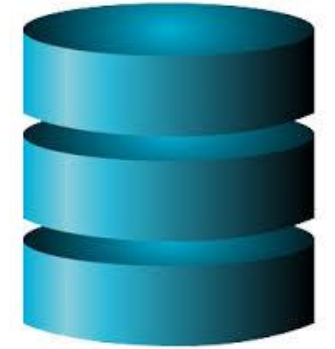
- Address identifiers, topographic places, points of interest, access nodes (including maps)
- Timetables, network topology, connection points, transport operators, operational calendars, stop facilities (incl assistance services, where to purchase tickets, elevators/escalators/ramps, osv), vehicle information, accessibility information
- Road network, cycle network, pedestrian network

Static Travel Data (Level 2)



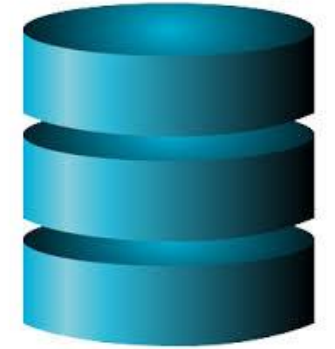
- Park & ride stops, bike sharing stations, car-sharing stations refueling stations, secure bike parking
- Where and how to buy tickets for scheduled modes, demand responsive modes and car parking
- Basic common standard fares
- Vehicle facilities such as classes of carriage, on-board Wi-Fi.

Static Travel Data (Level 3)



- Detailed common standard and special fare query (all scheduled modes)
 - Including fare products, usage conditions, special fare products, commercial conditions etc.
- Information service (all modes)
 - Where and how to pay for and book services, incl parking, tolls etc.
 - Parameters needed to calculate an environmental factor
 - Parameters such as fuel consumption needed to calculate cost
- Estimated travel times by day type and time-band by transport mode/combination of transport modes

Dynamic Travel Data



- Level 1: Passing times, trip plans and auxiliary information
 - Disruptions (all modes), real time status info, status of access node features
- Level 2: Estimated departure and arrival times of service, current road link travel times and cycling network closures/diversions
 - Availability of publicly available charging stations and refueling points
 - Availability check for car-sharing, bikesharing and parking spaces
- Level 3: Future predicted road link travel times



Required Standards for Static Data

- For road transport: DATEX II (CEN/TS 16157)
- For other modes: NeTEx (CEN/TS 16614), TAP-TSI ([EU 454/2011](#)) and IATA SSIM
 - or any machine-readable format fully compatible and interoperable with those standards and technical specifications
- For spatial data: INSPIRE ([2007/2/EC](#))
- Recommended for journey planners: Open API for Journey Planners (OJP) (CEN/TS 17118)

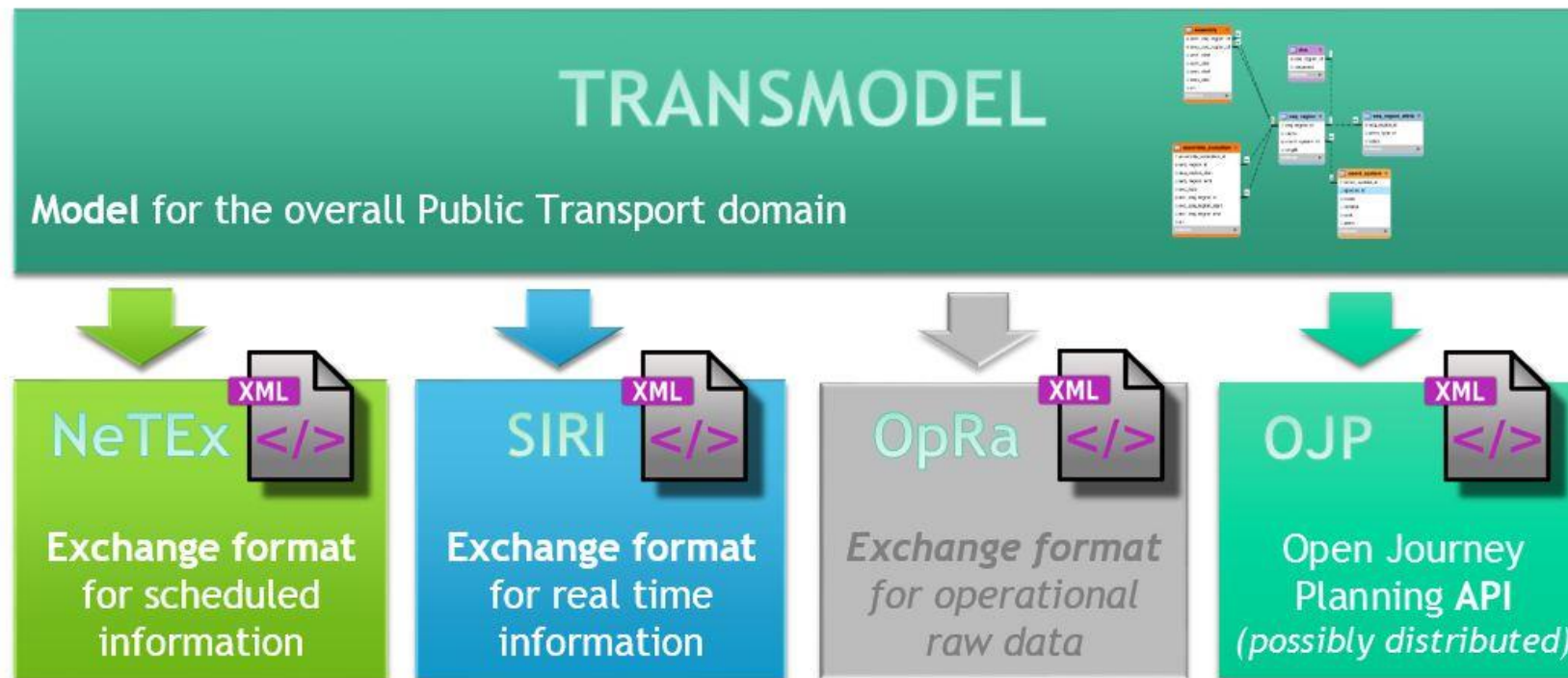
Required Standards for Dynamic Data



- For road transport: DATEX II (CEN/TS 16157)
- For other modes: SIRI (EN 15531) and TAP-TSI
 - or any machine-readable format fully compatible and interoperable with those standards or technical documents

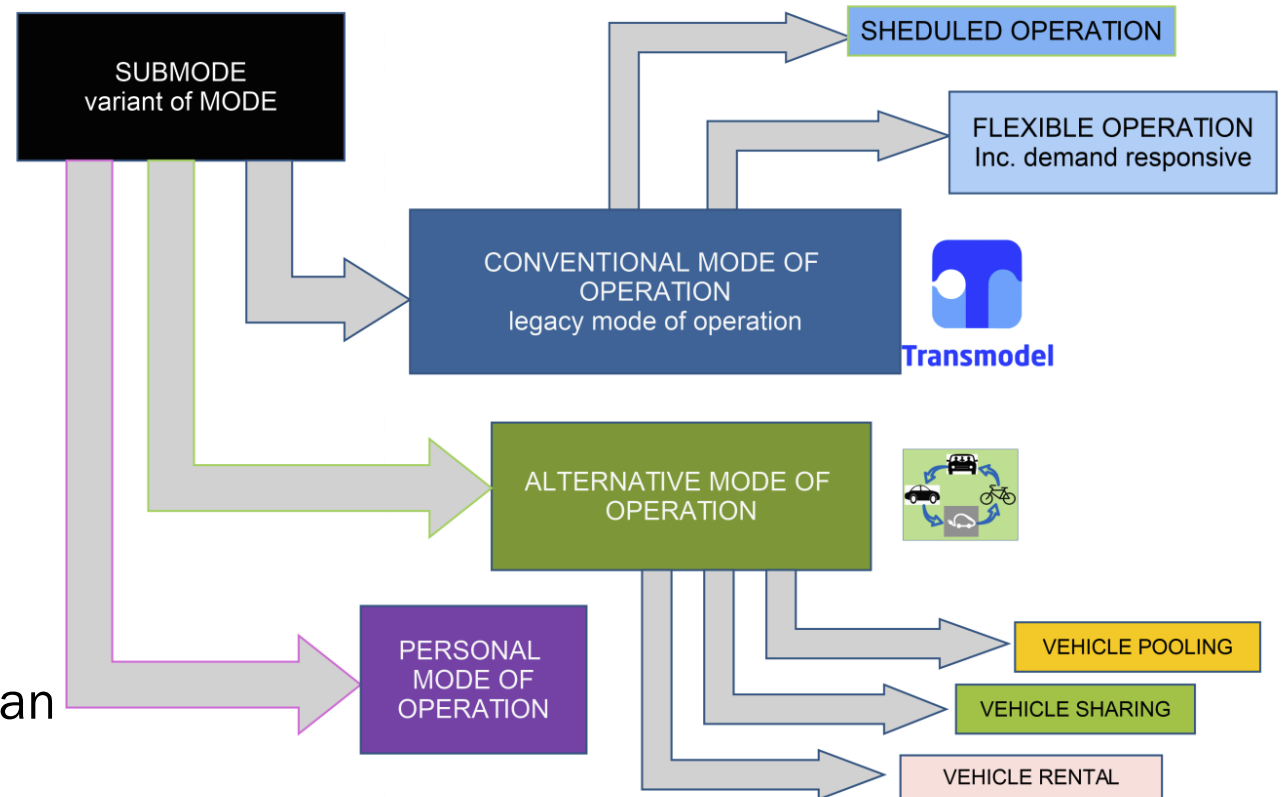
Transmodel (EN 12896)

- Transmodel is a reference data model for public transport
- Transmodel is the basis for several implementations standards



Models and Definitions for New Modes

- CEN/TS 17413
- «Sister standard» for Transmodel
- Covers new modes, like
 - Car- and bikesharing
 - Car- and bike hire
 - park & ride
- The model is designed to work with Transmodel
- Implementations model is planned as an extension to NeTEx



Profiles



- “To ensure the optimal use and full interoperability [...] a common minimum profile that identifies the different key elements [...] should be established and used within national access points”
 - These define a more precise interpretation of how to use the standards
- “Member States' national profiles must be based on a common minimum European profile when it exists”
 - The minimum European profile is NeTEx Part 4 (CEN/TS 16614-4)



Status

- Few countries have reached the first deadline
- The required standards and profile are does not cover all modes
 - Progress for the remaining work indicates that the next deadlines will be difficult to reach
- The EU Commission have CEF PSA 2 pending

Available Documentation for the Standards

- In addition to the standard documents several of the standards have web sites with freely available information and downloadable files
 - Transmodel: <http://www.transmodel-cen.eu/>: UML model (Enterprise Architect)
 - NeTEx: <http://netex-cen.eu/>: Whitepapers, UML model, XSD
 - SIRI: <http://user47094.vs.easily.co.uk/siri/index.htm>: Whitepapers, XSD
 - OJP: <https://dms.vdv.de/mitglieder/Seiten/ojp.aspx>: XSD
 - DATEX II: <https://datex2.eu/>: UML model, XSD
 - INSPIRE: <https://inspire.ec.europa.eu/>
 - TAP-TSI: https://www.era.europa.eu/activities/technical-specifications-interoperability_en

Further Reading

- EU Action Plan and Directive:
https://ec.europa.eu/transport/themes/its/road/action_plan_en
- EU EIP (European ITS Platform):
 - NAP Annual Report: <https://www.its-platform.eu/highlights/nap-2019-report-shows-uptake-national-access-points-still-work-be-done>
 - NAP Interactive Map: <https://eip.its-platform.eu/activities/sa-46-monitoring-and-harmonisation-single-point-access>
 - Direct link: http://www.cestrin.ro/web2014/nap_eueip/

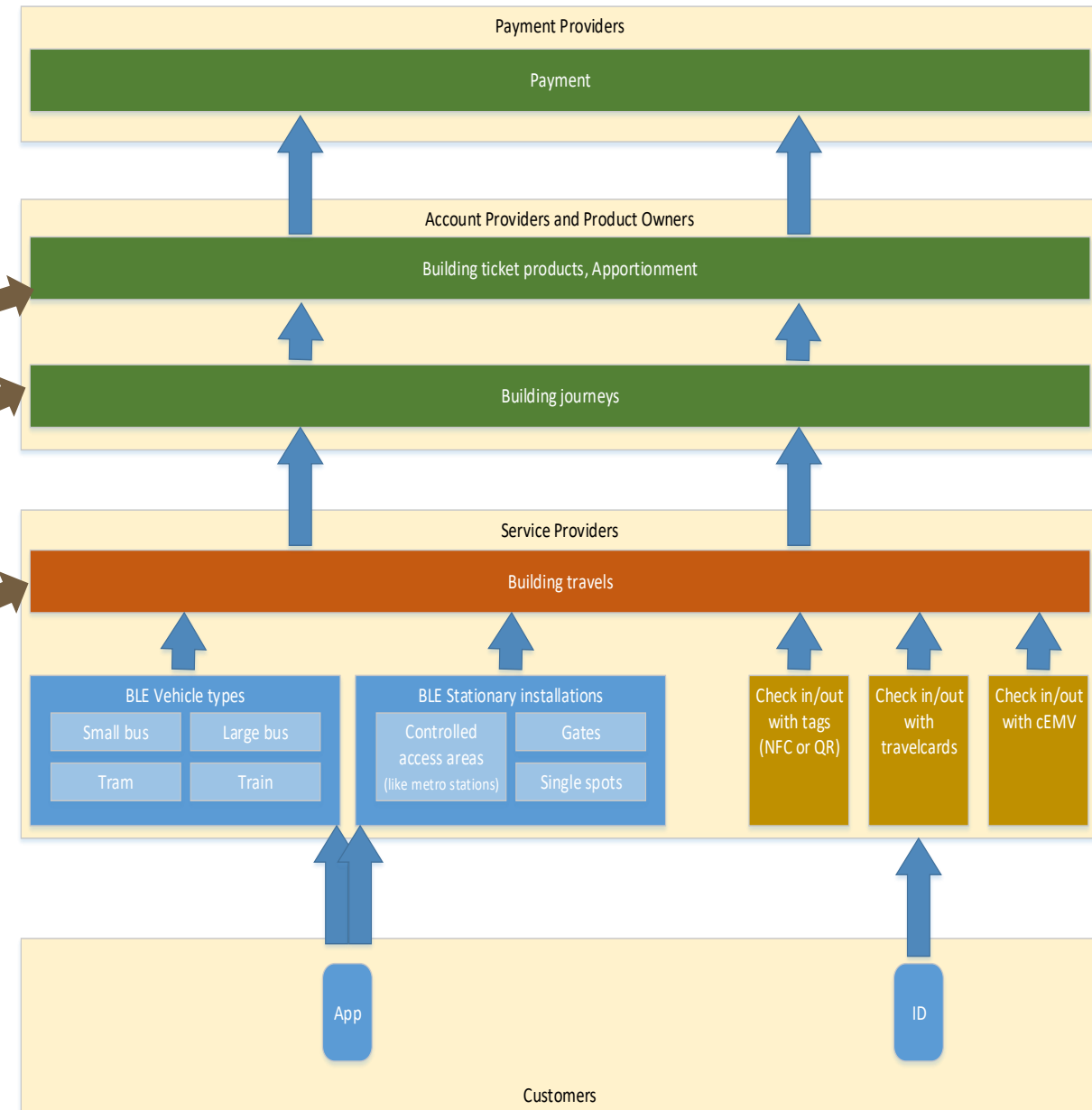
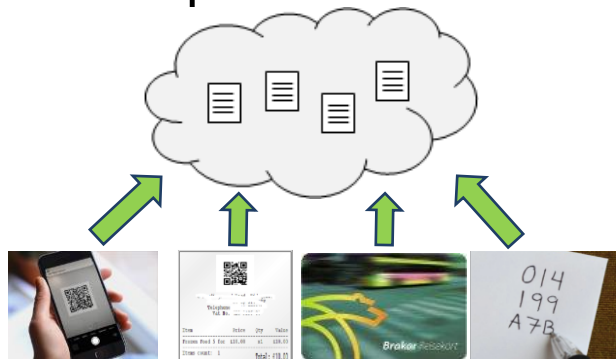


The Norwegian Approach

- Prefers the centralized approach – better data quality and harmonization
- The NAP is in operation as part of our national data catalogue
 - <https://transportportal.no>
- Uses NeTEx (and SIRI) also internally in Norway due to the information richness of the format
- We are also developing a National platform for interoperable account based ticketing (ID based) that builds on Transmodel, NeTEx and the IFM standard (ISO 24014)

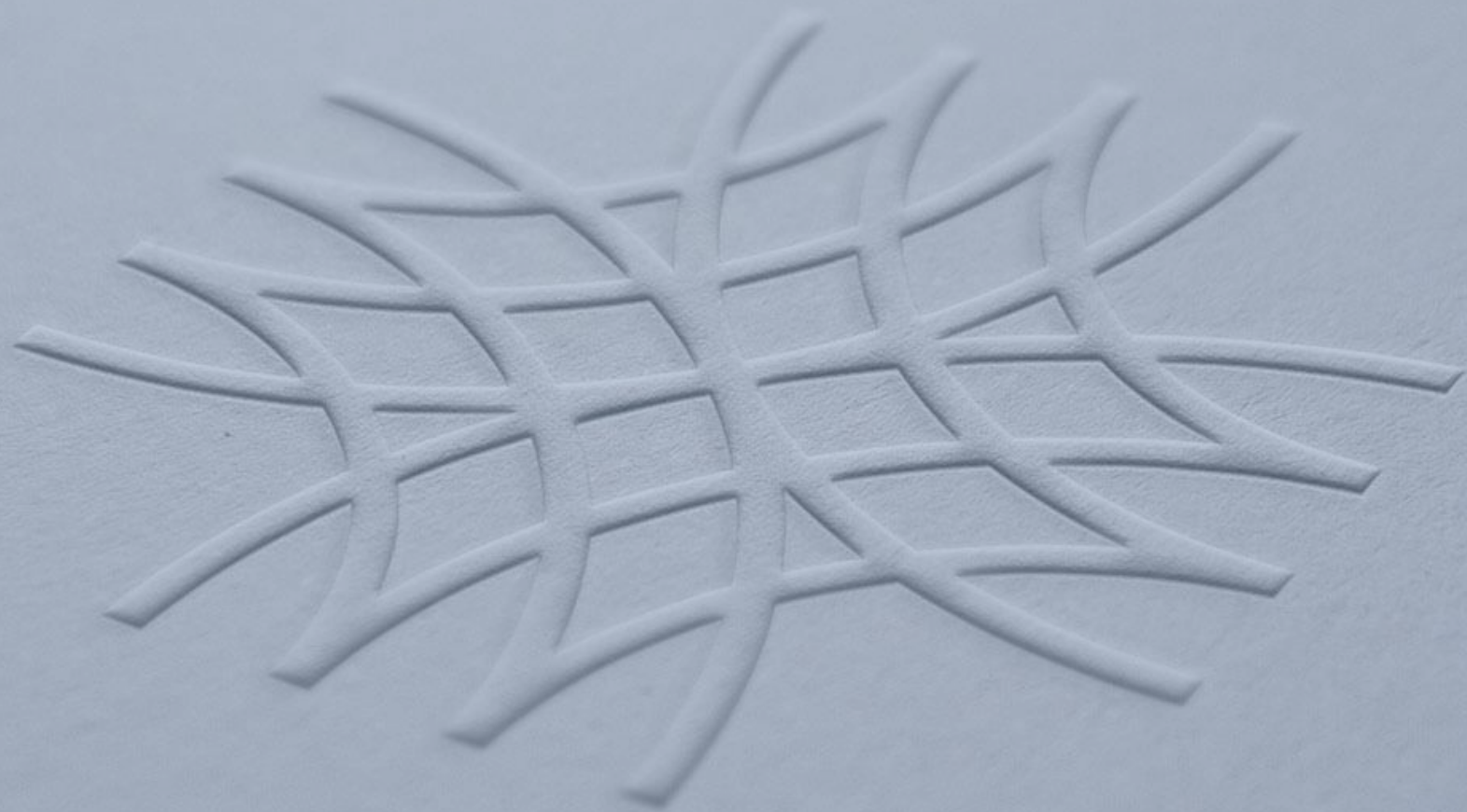
Norwegian Account Based Ticketing

- Three main concepts:
 - Ticket in the cloud
 - Capping/aggregating single journey tickets
 - Pay as you go (CI/BI/BO)
- Interoperable IDs





We don't know exactly what the transport system of the future will look like,



Thank you.
kjell-erik.eilertsen@jernbanedirektoratet.no