About EU DTLF, eFTI and EU FEDeRATED architecture

From document to digital dataset

UNCEFACT Digital Forum April 2021
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Digital Transport and Logistics Forum

Group of 120 experts that advise the European Commission (DG Move) on its digital transport strategy

5-year mandate (2019-2024)

Two EU CEF Funded consortiums (FEDeRATED, FENIX)
Two DTLF priorities

**eFTI Regulation**
EU 2020/1056 regulation on electronic freight documents

- Adopted 8/2020, applicable 5 years later = 21/8/2025
- Obligation for EU MS to accept electronic transport documents
- In an EU harmonized machine-readable data format
- Certified solutions and service providers
- EU MS must ensure the interoperability of IT systems
eFTI IT Reference Architecture …
Building the data sharing infrastructure
eFTI common dataset (draft version)

• Initial draft prepared by the DTLF eFTI Data Expert Group
The role of the EU Digital Transport and Logistics Forum

A group of more than 100 European transport and logistics stakeholders working together under the coordination of the European Commission.
eFTI – 5 Principles


Common requirements
Data, processing & interfaces
Certification is required to ensure harmonisation, acceptance & security

Technological Neutrality

Obligation for all authorities in all EU MS to accept the information electronically – for EO’s an option

Certified systems will be eFTI platforms - Can still be anything like a cloud solution, eCRM solution, PCS, TMS or ERP. Pull Mechanism is standard
A global data sharing infrastructure

- Shipper
- Road
- Port of Loading
- Maritime Transport
- Port of Unloading/Loading
- Inland Navigation
- Road
- Destination

- ERP
- TMS
- e-CMR
- PCS
- eBoL
- Bill of Lading
- PCS
- e-CMNI
- VOYAGE PLAN
- e-CMR
- ERP

Data sharing architecture

- Ex. Traders

- API
- Smart Container
- IOT
- Third party applications
- Blockchain...

- API
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National Access Point
- Infrastructure managers
- Border control, customs
- Security and safety
- Road control
- Environment
- VAT control

Harmonized authorisation
Common data definitions
Real-time access at source
No duplication of data

Single connection
Single authentication
e-CMR/eFTI Access Point Living Lab
One single connection

- Digital transport and logistics twins
- Use same data for commercial, transport and border control
- Seamless integration of multiple standards
- Events, subscribe if you are entitled
e-CMR/eFTI Access Point Living Lab

- Create a common understanding
- Use real-world multi-modal reference supply chains
- Demonstrator, then pilot
### Interoperable transport information

<table>
<thead>
<tr>
<th>Rotterdam (NL)</th>
<th>Antwerp (BE)</th>
<th>Luxembourg</th>
<th>Chicago O’Hare</th>
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<tbody>
<tr>
<td>House waybill 1</td>
<td>CMR 1</td>
<td>Truck Manifest 1</td>
<td>Antwerp (BE)</td>
</tr>
<tr>
<td>CMR 1</td>
<td>Truck Manifest 1</td>
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<td>Dangerous transport</td>
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<tr>
<td>Truck Manifest 1</td>
<td>ADR 1</td>
<td>CSD 1</td>
<td>Security declaration</td>
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<tr>
<td>ADR 1</td>
<td>DGT 1</td>
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<td>Issued by carrier</td>
</tr>
<tr>
<td>CSD 1</td>
<td></td>
<td></td>
<td>Issued by sender goods</td>
</tr>
</tbody>
</table>

- ISSUED BY CARRIER
  - GHA Export
  - Road 1
  - # Flights
  - GHA EU Exit
  - Road 2
  - GHA Destination

- ISSUED BY SENDER GOODS
  - GHA Export
  - Road 1
  - # Flights
  - GHA EU Exit
  - Road 2
  - GHA Destination

- HANDLING AGENT, DRIVER
  - Public authority
  - Dangerous transport
  - Security declaration
UNCEFACT RDM2API project

REST Resource

http Verbs

Microservice

Events

Transport Domain

Voyage

Data

Lifecycle

GET

GET

POST

PUT

PATCH

DELETE

planned

departed

inTransit

arrived

Source RDM2API, edi3.org
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From document to digital twin dataset
Example of a transport digital twin data set

Transport movement

ETA, ATA

Consignment (master)

Consignment (house)

Unique shipment identifier
Information model (simplified)
Semantic interoperability

EU FEDeRATED Ontology

- Digital twins share events
- Top-down semantic ontology (RDF/OWL)

UNECE RDM2API

- UNCEFACT Reference Data Models (BSP, MMT, e-CMR,..)
- Published as JSON-LD vocabulary
- Create OpenAPI 3.0
- Create Ontology (RDF/OWL)
From document to twin dataset

1. Data at source: linked data, unique ID, API, events
2. Only once principle: use same data for commercial, transport and compliance
3. A federated API architecture needs for interoperable semantics
4. eFTI is a first step

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