Electronic Transport Documents

Team 2 – a blueprint for a multimodal eWaybill

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Electronic transport document infrastructure

- Example – private sector initiatives for eCMR
  - Platforms with their own internal (and external) data structures
    - One pan-European (IRU) – TransFollow
    - eCMR, Danish initiative
    - Others like Spain develop solutions for cross-border transport with France
    - Large LSPs have their own implementation of an eCMR based on trust and reputation

- Alternative solutions are introduced
  - Blockchain technology based? A trusted distributed electronic environment for documents? Accessibility formulated by ‘chain code’ or ‘Smart Contracts’
  - Centralized, European solutions and their directives? Who will deploy and manage these?

- The infrastructure should support the (waybill) documents identified in team 1 and 3.
Electronic transport document infrastructure

❖ Should the infrastructure support all modalities (air, road, rail, sea, inland waterways)?

❖ What solutions are already available for other modalities (e.g. (air)port community systems, Maritime Single Window, ….)?

❖ For which purpose will an electronic transport document be used by authorities?
  • Prevention and law enforcement (safety and security)
  • Accidents and incidents
  • Competition (e.g. cabotage)
  • Others…

❖ How will an authority know to access the proper solution?
Standardization: implementation guides of open standards leads to closed systems

Open standards are a basis for developing implementation guides of profiles. It is not uncommon to have three levels related to organizational models: open standards, international/community/sectorial guides, national/company guides. Example: development and implementation of WCO Data Model.
This could lead to different options for an electronic transport documents (prioritize on short - , mid - , and long term feasibility)

- PDF documents with metadata required for search and find (e.g. document type, carrier, identification of transport means, etc.), with clearly defined access control policies

- Structured data sets of authorities’ requirements as metadata (e.g. dangerous cargo, voyage/route details, …) for PDF documents

- Completely structured data representing mode specific electronic transport documents (road, rail, inland waterways, sea, air)

- Generic data structures for modality independent electronic transport documents

- Conceptual interoperability supported by a federative platform infrastructure (Sub Group 2)
Minimal set of agreements to an electronic transport documents infrastructure

- Agreements on data semantics
  - Different technical solutions/syntaxes (push/pull, APIs, XML, EDI, JSON, blockchain technology, data crawling (like google search))
  - Independent of IT solutions of data provider
- Private sector data and infrastructure
  - Any solution feasible (enterprise solutions and platforms)
  - Trusted solutions and – users for data manipulation (IAA: Identity, Authentication, Access Control)
  - Data quality – correct, complete, consistent
  - Archiving, logging (period)
  - (distributed) Registry of participating users to find a system
- Public sector IT functionality for authorities
  - Data (visualisation) dashboards
  - Risk analysis and prevention algorithms
  - Analysis always on the latest state of logistics (including the past)
- Transition scenario – from paper based documents to a fully digitalized environment
What would be the preferred technical solution?

- Provide the data to authorities (push, e.g. structured eWaybill or structured metadata with PDF)

- Signal the availability of new data to authorities (push combined with pull, depending on for instance reporting requirements like dangerous cargo reporting).

- Authorities have access rights to particular data and are able to query the infrastructure (pull, predefined queries)
Towards a blueprint

Blockchain technology can also be used as node or as the infrastructure for eDocuments. It is especially suitable for documents of team 3!

The parameters of a search define the data in the registry, e.g. search on licence plate or AIS? Distributed search, e.g. from AIS sensor provider to owner and registration?

Identity, Authentication, and Access Control linked to ones physical location (e.g. a Dutch police agent does not have authority in Germany). Re-use of eIDAS?
Would there be different solutions from different perspective?

- Potential perspective
  - No difference
  - Modality
  - Type of goods
  - Type of documents
  - Technology (e.g. blockchain)
  - Functional components (e.g. separate registry(ies) and storage components)
  - Others, please specify

- What would be barriers to federation of solutions
  - Differences in data stored
  - Differences in technical solutions
  - No overlap in functionality
  - Business wise (roaming)
  - Others, please specify

- Could it be feasible to implement various search algorithms for authorities (more than one answer possible)
  - Yes, general search
  - Yes, specific queries
  - Yes, always with access control
  - No
A roadmap for an eTransport Document Infrastructure

- **Dimension 1 – documents**
  - From PDF documents with metadata to structured data
  - Do all documents have to be fully structured?

- **Dimension 2 – document store**
  - **Private domain stores:** local, enterprise store (web servers) versus stores of external providers
  - Functionality related to a store like generation of events to authorities to indicate new documents
  - Public domain stores?

- **Dimension 3 – authority requirements**
  - Document access versus visibility dashboards with structured queries
  - Requirements to document stores, data quality, etc.?
Questions?