Electronic data exchange for the transport and logistics via mobile communication technologies

(TDEM: Transport Data Exchange via Mobile)

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I. Project purpose

• Business requirements and essential data items suitable for mobile technologies during delivery based on MMT
• Various actual routes in modern intermodal, synchromodal and multimodal transport → operational considerations
  ✓ Train decoupling
  ✓ Use of rail infra for both passenger/freight transport
  ✓ Terminal opening hours
  ✓ Traffic congestion
  ✓ Co-ordinations between multiple partners and timing of road haulage
  ✓ High transshipment cost
  ✓ ……..
I. Project purpose

- Security and risk issues by changes in itineraries during transport
- Difficult tracking of the trade items
- Requirements for the information of all such changes in safer, more precise and prompt ways
- Key data requirements to support short, sharp efficient data deliveries

Mobile technology
II. Scope

- Specifying real time and geographical data items to be useful to exchange in order to increase transparency, reliability and completeness during the transport movements of consignments;
- Developing BRS based on the MMT high-level BRS;
- Developing an RSM to help users apply the identified data items in standardized message structures.
- Develop a guideline for implementing the scenario defined in the BRS and RSM deliverables.
III. Deliverables

• Business Requirements Specification (BRS) as defined during the business requirements gathering
• Requirements Message Specifications (RSM)
• XML schema of the required messages
• Guideline document
IV. Initial Contributions

- T&L's Multi-Modal Transport Reference Data Model (project p1023)
- BRS IFTM International Forwarding and Transport
- UN/CEFACT Modelling Methodology (CEFACT/TMG/N093)
- UN/CEFACT ebXML Core Components Technical Specification Version 2.01
- Artefacts from the South Korea Electronic Bill of Delivery for Logistics (e-BOD) project
V. Requirements

Reliable Visible Real-time Logistics Data

Visibility
- Person
  - information distortion/omission
  - mistake (adventitiously, unconsciously)
  - accident, crime
  - wrong transporter, consignee
- Environment
  - incorrect delivery place
  - invisible freight
  - complex logistics industry structure
  - distorted logistics market
  - vehicle problems

Real-time
- Technology
  - online and off-line mixed different communication protocols
  - weak security
  - interoperability problem
- Practice
  - loose freight check
  - order document issued by forwarder or transporter
  - delivery without order document

Reliability
V. Requirements

Issues and concerns in mobile technology

- fake user
- fake device
- fake S/W
- accessed by anyone
- modified by anyone
- interfered by anyone
- unexpected channel broken
- unexpected power-off
- unexpected hand-off
- delayed transmission
- geographical problem

- authenticate user, device, s/w
- detect and prohibit anyone access and interfere
- guarantee integrity of e-Doc
- detect loss, broken, theft, delay of message
- guarantee message transmission

Mobile authentication
Mobile security
Mobile reliable messaging
V. Requirements

Synchronization for logistics data

- Consigner
- Forwarder
- Warehouse
- Mediator
- Delivery store
- Consignee

Logistics information space

Real delivery world

Synchronize

VI. Target Data for Synchronization

Data for stationary resource/customer demand/moving resources

Customer demand/need

Stationary resources
- Shipping Condition / Shipping Completed Time / Carrier condition /...
- Transportation status / Loading status / Unloading status
- Loading place / unloading place / cargo space / shipping instruction / Freight data / next modal / regulation / In shipment /…

Moving resources
- Despatch advice / packing info / Change of consignment / Consignment data /...
- Location information / Transportation status / Transportation completion / Transport report /...
- Location information / expected arrival time / accident / exception situation / cargo situation / Booking of cargo space / freight status / carrier status /…
- Thank you -