SMARTFREIGHT concepts and technology

ECITL 2014 – Investor’s session
Zaragoza, October 2014

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**Executive Summary**

- **A generic and holistic approach**
  - Stakeholders
  - Specification according to ARKTRANS
  - Concepts
  - System components and CVIS

- **Developed applications**
  - Access control
  - Goods monitoring (incl. dangerous goods)
  - Resource booking

- **Integration of traffic and transport**
  - Traffic management
  - Freight distribution management

- **Transport companies, fleet operators**
- **Drivers**
- **Managers of the urban traffic**
- **City in general / society**
- **Retailers and cargo owners**
- **Resource managers (e.g. those managing accesses to resources like loading bays**
- **Technology providers**
Transportation network

- Terminal areas
- Stop points
- Terminal
- Holding Area
- Stop points
- Bus lane
- Green area
- Area with DG restrictions
- Loading bays
- Tunnel
- Controlled Area
- Transport Network Resource
SMARTFREIGHT and the CVIS technology

- SMARTFREIGHT applications
  - appear as applications in the CVIS service platform
  - use CVIS and OSGi service interfaces / APIs
  - use the CVIS service platform for communication (RSE – OBE)
  - may use IPv6 without the CVIS service platform (back office – RSE/OBE)
Goods monitoring
(the SMARTFREIGHT demo)

- API: `pushItemStatus(ItemStatus): void`
- Information: Temperature deviation
- Communication: CALM FAST over CEN DSRC
- Demo: Event-based monitoring
  - Deviation & Handling

```
ItemStatus
• ItemConditionDeviation: true
• Status: Under_progress
• ConditionType: Temperature
• MeasurementUnit: Celsius
• Value: -8.7
```
Goods monitoring (the SMARTFREIGHT demo)

- API: pushItemStatus(ItemStatus): void
- Information: Temperature deviation
- Communication: IPv6 and CALM M5 (opt. IPv6 and 3G)
System components

Vehicle

- On-goods Equipment (OGE)
- On-board Equipment (OBE)
- Roadside Equipment (RSE)

Freight Distribution Management System

Urban Traffic Management System

Control Centre, incl. HMC
Concepts

- **Controlled Area**
  - area or section of the network that is monitored or have access restrictions

- **Transportation Network Resources**
  - sections of the network that can be assigned to individual vehicles.

- **Access and Priority Assignment (APA) policy**
  - formal definition of the traffic management rules for a Controlled Area.
  - default APA policies for different time periods
  - dynamic APA policies in case of unexpected traffic situations

- **Access and Priority Offer (APO)**
  - the access rights and priorities assigned to an individual vehicle in a Controlled Area.
  - derived from the APA policy or assigned to the vehicle on request
Service interfaces / APIs

- Provision of:
  - APA policies to vehicles and operators
  - APO assignments to vehicles
  - Traffic situation information

- Data collection
  - Vehicles, transport and traffic (e.g. for statistics)

- Monitoring
  - Vehicle monitoring in Controlled Areas (entry and exit detection, tracking, etc.)
  - Cargo monitoring
  - Transport Operation Status reporting

- Bookings and re-bookings of Transportation Network Resources
SMARTFREIGHT Facts

- **Budget**
  - Overall: €3 mill
  - Funding: €2.2 mill

- Collaborative Project; start 01.01.2008, end 30.06.2010

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