Frameworks for a Cargo Centric Approach

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The basis for the work presented here

- SINTEF has been working with a “systems framework architecture”, or framework, the last 9-10 years => ARKTRANS
- ARKTRANS has been used in several transport related projects, MarNIS, Freightwise, SMARTFREIGHT

- What is a “framework”?
  - Describing the need for exchange of information in the transport sector by means of overall processes, functions and information elements
  - Using an overall depicting of the sector – Reference Model – and a small set of generic roles
Intermodality – why is it so hard?

• Each form of transportation has for a long period of time created its own way of handling freight – accompanied with own set of regulations and standards
• The more traditional way of thinking has been to establish interfaces to other modes of transport
• Terminal management has been treated as something else than a transport service
• Much of the specification/development work has given open standards such as each business relationship must set up a specific way of exchanging information
Requirements to a framework

- It should be 100% multi modal and freight oriented
  - Supporting the idea of eFreight
- It must not interfere with the internal business processes of the companies that bases the information exchange on it
- It must be applicable also when the covered issues cannot be multi modal anymore
- It must be consistent with technical architectures, like CVIS
- It should take into account the good results from many years of standardisation
  - UN/CEFACT
  - UBL
- Being cargo centric?

- Is it possible?
SMARTFREIGHT and Freightwise

• SMARTFREIGHT, Collaborative project, FP7, DG-INFSO (ICT)
  • The focus is urban freight transport
  • Freight vehicles with and without cargo
  • “Individual” traffic control
  • Building on the CVIS infrastructure and the application framework provided by CVIS
  • Practical test site in Trondheim, Norway
• Freightwise, Intergrated project, FP6, DG-TREN
  • The focus is freight transport
  • The needed exchange of information between a transport services buyer and possible transport services suppliers
  • Several practical software implementations and business cases
For each domain of the Reference Model
- Roles with responsibilities (one role belongs to just one domain)

For each domain/Role
- Functions that contributes to the fulfilment of the responsibilities
- The roles interact to fulfil responsibilities
- Processes involving different domains/roles and information exchange
- The information elements are exchanged
Reference Model

Transportation Network Management

- Transportation Network Infrastructure Management
- Infrastructure condition information
- Emergency Management
- Regulation Enforcement

Goods transport demand

Provision of freight transport and terminal services

On-board Support and Control

Transport Sector Support
Transportation Network Management

- Transportation Network Infrastructure Management
- Urban traffic management towards individual vehicles
- Emergency Management
- Regulation Enforcement

Transport Demand

- Urban freight distribution management

Freight Vehicles

Transport Sector Support

Monitoring technology

Reference Model

On-board Support and Control

Transport Service Management

Transportation Network Utilisation

Transportation Network Infrastructure Management

Emergency Management

Regulation Enforcement

Urban traffic management towards individual vehicles

Freight Vehicles
Transport User

Transportation Network Manager

Transport Regulator

Transport Service Provider

Transport demand
Specifies the need for transport and approves transport execution plan based on information of services (routes, terms and conditions). Monitors status decides corrective actions.

Transport Support and Regulation
Develops the regulatory framework. Ensures that transport is conducted accordingly.

Transport Service Management
Publishes services (routes, cargo types, etc) Proposes transport execution plan Executes transport Reports transport status

Transport Infrastructure Management
Provides information about the current and foreseen situation of the network. Controls traffic in the transport network
Functional view

- **Transportation Network Utilisation**
- **Plan Transportation Network Utilisation**
- **Traffic Manager**
- **Perform Operational Traffic Management**
- **Green area**
- **DG**
- **Manage Transportation Network Resources**
- **Transportation Network Resource Manager**

Functions needed by the roles
Conclusions

- A common, cargo centric, framework for freight is feasible
- Handling multi modality is feasible
- Handling modal specialities are feasible within the multi modal framework

- Much work is already done during several activities and projects

- A task force for a common freight framework is established and will work until April 2010 to further deepen the cooperation and common understanding
More information?

- www.arktrans.no
- www.smartfreight.info
- www.freightwise.info
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