ARKTRANS

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ITS Norway
and
Norwegian Public Roads Administration (NPRA)
Multimodal Cooperation on ITS since 1998

Public Roads Administration
Coastal Administration
Rail Administration
NSB (National Rail Operator)
Avinor (Operator of Airports and ATM)
Observers:
Transport Ministry
Transport business organisations

National Network Group for ITS

Initiatives taken

Co-operation agreement
National ITS Strategy
Framework Architecture ARKTRANS
Multimodal ITS Norway

ITS Action Plan - Information Meeting - Stockholm April 2009
Basic Approach

• A Framework Architecture – not systems architecture
• Starting from scratch – not build on existing systems
• Top-down methodology
• Commitment and input from the transport business
Basic Requirements

- Multimodal (usable for all transport modes)
- Stable and flexible (easy to refine and expand)
- Future-oriented (Independent of current solutions)
- Include both freight and passenger transport
- Possible to hide complexity (abstraction, simplification)
- Focus on interoperability (not on inner parts of systems)
- Focus on roles (to abstract away from current stakeholders)
- As independent of technology as possible
Development model

ARTRKTRANS versions

Soon: Version 6.0

Usage
Projects
Standards

Guidelines and user support

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Use of ARKTRANS

- D2D (FP5 - Intermodal freight transport)
- MarNIS (FP6 - Maritime traffic management and regulation)
- Freightwise (FP6 - Co-modal freight transport)
- SMARTFREIGHT (FP7 - Urban traffic man. of freight vehicles)
- Rosatte (FP7 - Transport network information management)
- Specification of the VIKING Ferry Data Pool
- MultiRIT (National – Multimodal travel information services)
- VITSAR (National – Transport terminal management)
- INTRANS (National - Intelligent cargo)
- General specification of TMCs - responsibilities and organisation
- Business Plan for National Rail Operator
- Specification for Vessel Traffic services (Maritime)
- Easyway - VIKING
What is ARKTRANS today?

1. A Multimodal Framework Architecture for Transport
2. An official National framework endorsed by the Norwegian Transport Ministry and the Parliament
3. Managed by ITS Norway on commission from the Ministry of Transport
4. A framework to support transport policy:
   • Intermodal transport solutions
   • Interaction and interoperability
   • Synergy of systems
   • Fast deployment
5. A framework that facilitates development of system architectures, specifications and new business models
The ARKTRANS Reference Model

- Transport Network Management
  - Transport Network Utilisation
  - Transport Network Infrastructure Management
  - Regulation Enforcement
  - Emergency Management

- Transport Demand

- Transport Service Management

- Transport Execution Support and Control

- Transport Sector Support
Roles and Responsibilities

- Each role is unique and relates to one sub-domain
- The role represents a unique set of responsibilities
- Common multimodal terminology simplifies the architecture specification
- Modal terms are mapped with multimodal terms
Functions and sub-functions

Functional decomposition
Scenarios related to roles

- UML activity diagrams in swim lanes
- Illustrates use of functionality
- Verifies functionality
- Identifies interactions and information exchange
- The information content is defined in the information view (next)
Conceptual information models define common information that is the basis for interoperability.

Message models building blocks from the conceptual information models.

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Unique qualities ARKTRANS

• Role-centric, not restricted to current stakeholders
• The focus on interaction, information content and interoperability
• Adaptable to all transport modes - passenger and freight
• Offers understanding, terminology and mapping of terms
• Based on a reference model for transport
  – Not on functional areas as most other framework architectures
• Able to hide complexities when needed
• Adaptable to existing systems
• Facilitates defining new business models
• Future oriented and flexible
Conclusion

A European multimodal Framework Architecture is needed

• That supports transport policies
  – Greening of transport
  – Efficiency, safety and security
  – Co-modality
  – Interoperability
• That provides the ability for abstraction and simplification
• That is independent of transport mode and technology
• That is adaptable to organisational change
• That may be developed on the basis of existing work
• That can be a part of the ITS EU Specification
• ARKTRANS is open, free and available
Thank You for the Attention!