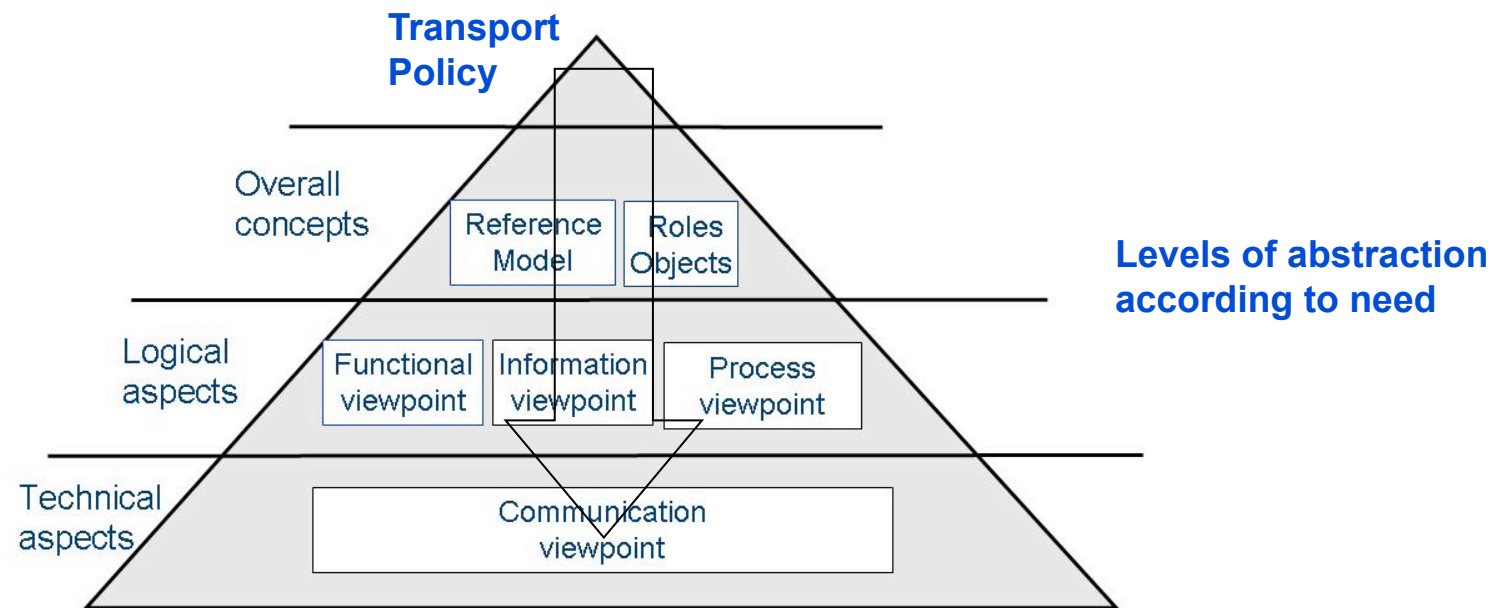




Ivar Christiansen
ITS Norway
and
Norwegian Public Roads Administration (NPRA)

Basic Approach

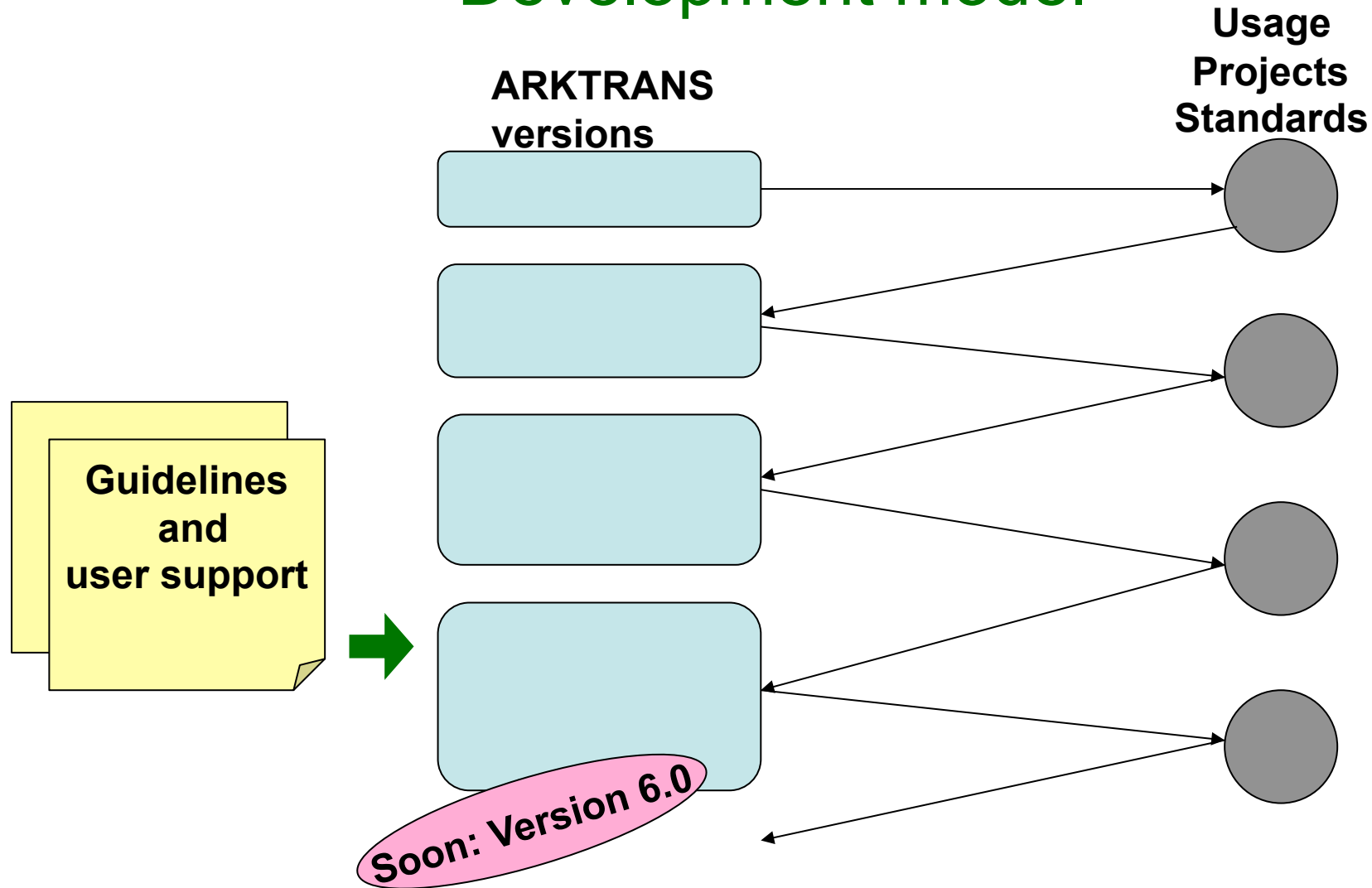
- A Framework Architecture – not systems architecture
- Starting from scratch – not build on existing systems
- Top-down methodology
- Commitment and input from the transport business



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



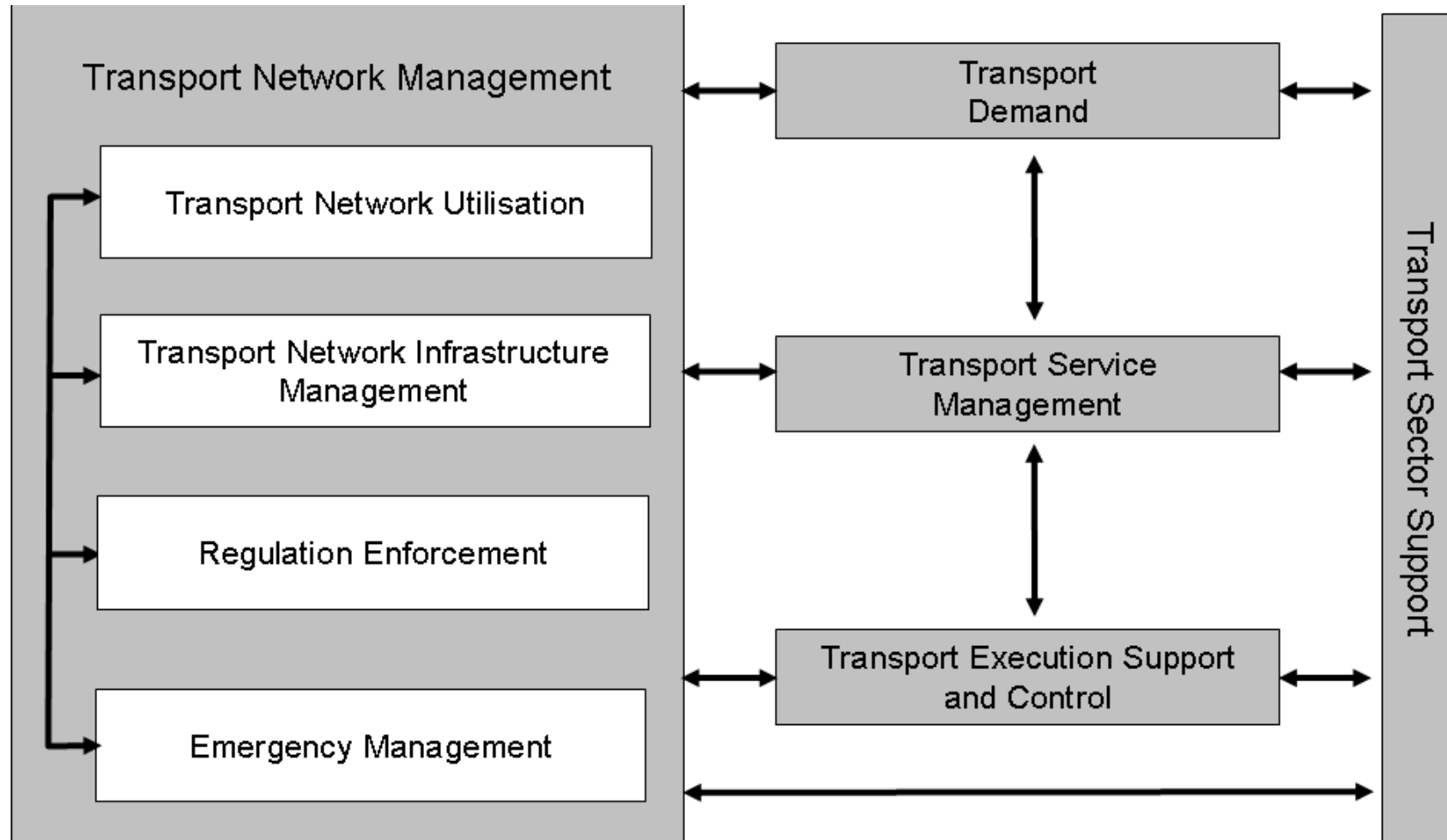
Use of ARKTRANS

- 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?

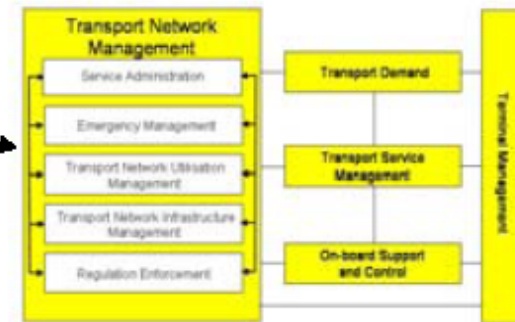
1. A Multimodal Framework Architecture for Transport
2. An official National framework endorsed by the Norwegian Transport Ministry and the Parliament
3. Managed by ITS Norway on commission from the Ministry of Transport
4. A framework to support transport policy:
 - Intermodal transport solutions
 - 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



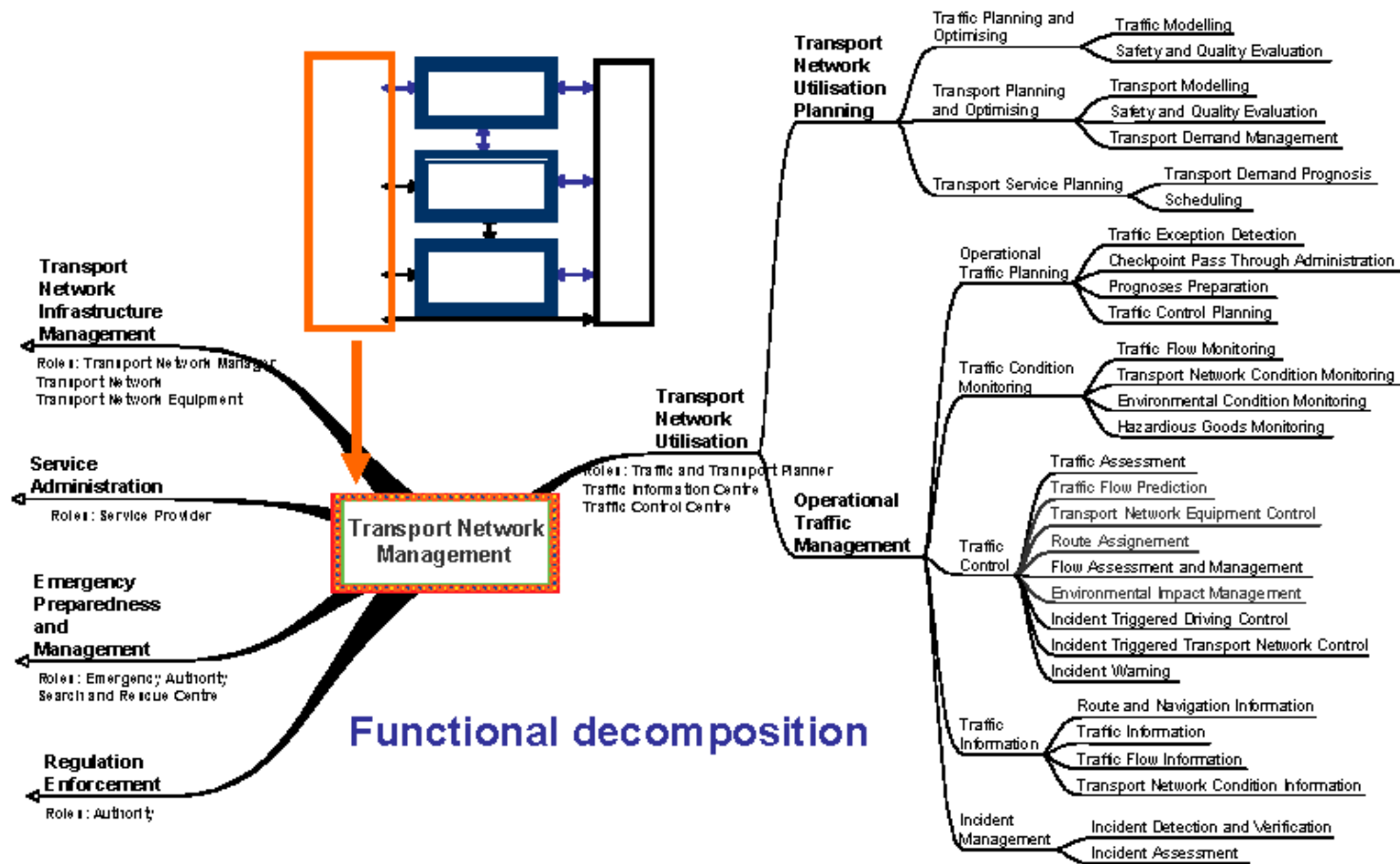
Roles and Responsibilities

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



Multimodal terms		Examples of modal terms			
Superior roles	Detailed roles	Road	Sea	Rail	Air
Transport User	Consignor				
	Traveller				
	Transport organiser				
Transport Service Provider		Bus company	Ship operator	Railway company	Airline
Crew	Captain	Driver	Captain	Engine driver	Captain
	Driver	Driver	Helmsman	Engine driver	Pilot
Traffic Management Centre		TMC	VTS	CTC	Air traffic control centre
...	...				

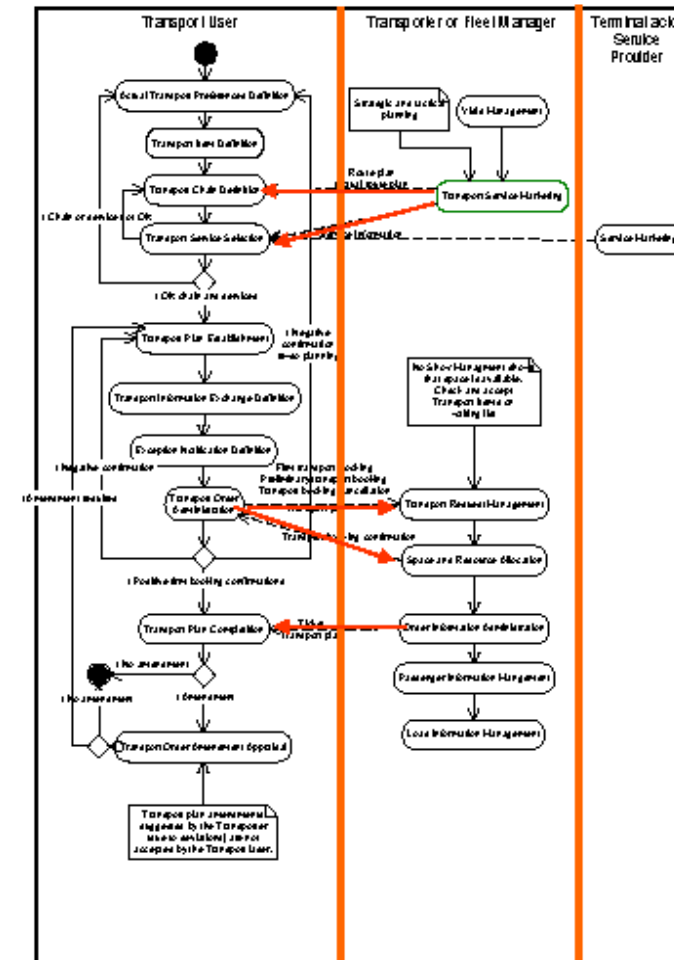
Functions and sub-functions



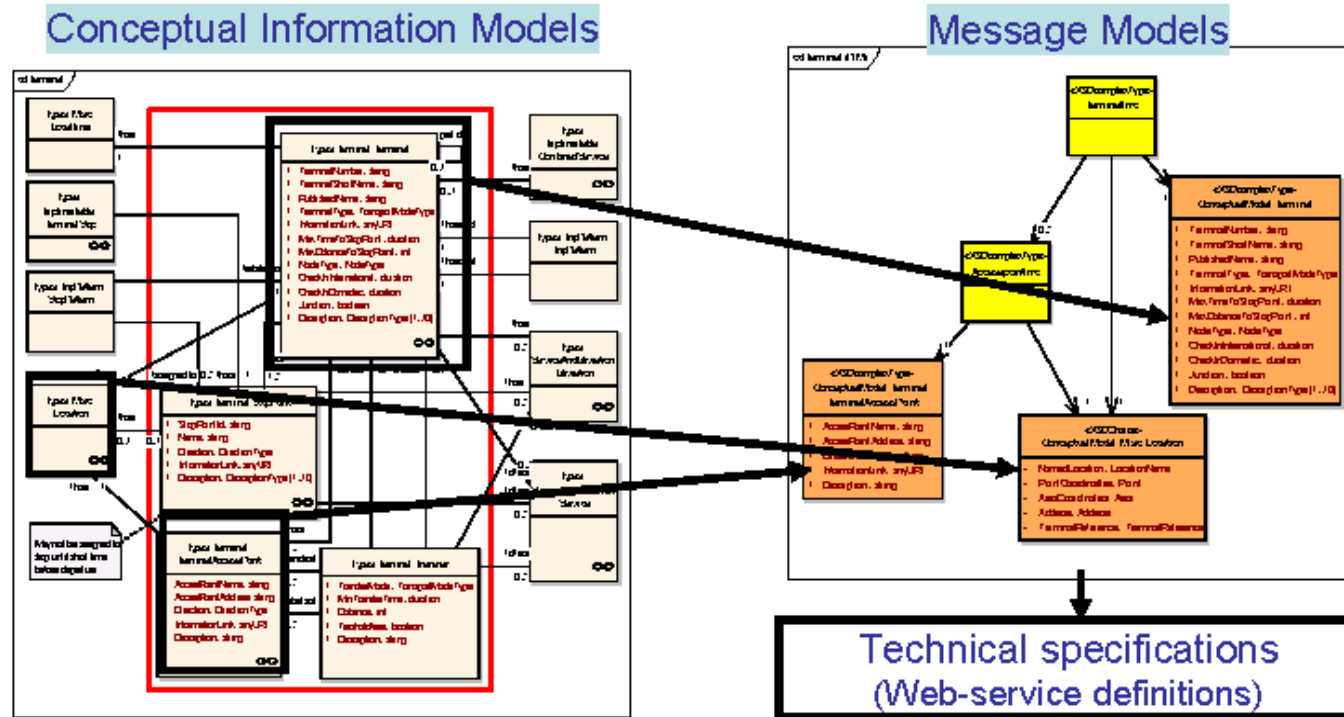
Process view

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)



Information view



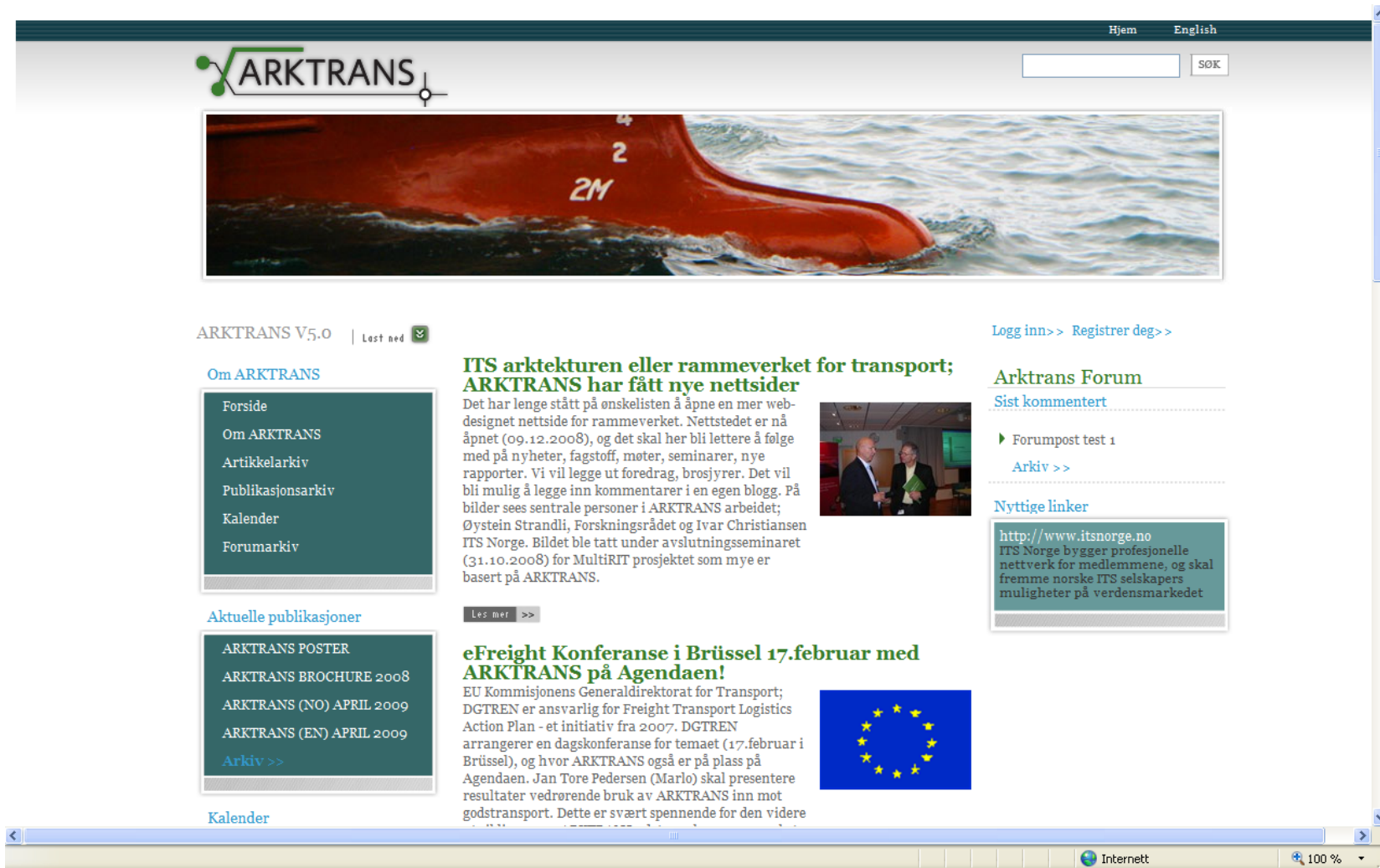
Conceptual information models
define common information that
is the basis for interoperability

Message models
building blocks from the
conceptual information models


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


Web Site www.arktrans.no



The screenshot shows the ARKTRANS website interface. At the top, there is a navigation bar with "Hjem" and "English" links, and a search box with a "SØK" button. The main header features the ARKTRANS logo and a large image of a red boat hull with the number "21" on it. Below the header, the page is divided into several sections:


- ARKTRANS V5.0** | Last ned 
- Om ARKTRANS**
 - Forside
 - Om ARKTRANS
 - Artikkelarkiv
 - Publikasjonsarkiv
 - Kalender
 - Forumarkiv
- Aktuelle publikasjoner**
 - ARKTRANS POSTER
 - ARKTRANS BROCHURE 2008
 - ARKTRANS (NO) APRIL 2009
 - ARKTRANS (EN) APRIL 2009
 - [Arkiv >>](#)
- Kalender**
- ITS arktekturen eller rammeverket for transport; ARKTRANS har fått nye nettsider**

Det har lenge stått på ønskelisten å åpne en mer web-designet nettside for rammeverket. Nettstedet er nå åpnet (09.12.2008), og det skal her bli lettere å følge med på nyheter, fagstoff, møter, seminarer, nye rapporter. Vi vil legge ut foredrag, brosjyrer. Det vil bli mulig å legge inn kommentarer i en egen blogg. På bilder sees sentrale personer i ARKTRANS arbeidet; Øystein Strandli, Forskningsrådet og Ivar Christiansen ITS Norge. Bildet ble tatt under avslutningsseminaret (31.10.2008) for MultIRIT prosjektet som mye er basert på ARKTRANS.



[Les mer >>](#)
- eFreight Konferanse i Brussel 17.februar med ARKTRANS på Agendaen!**

EU Kommissjonens Generaldirektorat for Transport; DGTREN er ansvarlig for Freight Transport Logistics Action Plan - et initiativ fra 2007. DGTREN arrangerer en dagskonferanse for temaet (17.februar i Brussel), og hvor ARKTRANS også er på plass på Agendaen. Jan Tore Pedersen (Marlo) skal presentere resultater vedrørende bruk av ARKTRANS inn mot godstransport. Dette er svært spennende for den videre


- Logg inn >> Registrer deg >>**
- Arktrans Forum**
 - [Sist kommentert](#)
 - Forumpost test 1
 - [Arkiv >>](#)
- Nyttige linker**
 - <http://www.itsnorge.no>
ITS Norge bygger profesjonelle nettverk for medlemmene, og skal fremme norske ITS selskapers muligheter på verdensmarkedet

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!

