DVM-Exchange

Interface standard for DTM-systems
Outline

• Introduction – Frank Ottenhof, Trinité
• Perspective of RWS – Antoine de Kort, RWS
• Perspective of the province – Guus Kruijssen, Provincie Noord-Holland
• Technical aspects – Jos Vrancken, TU Delft
• Organizational aspects – Rudi Lagerweij, Vialis
Perspective of RWS

A step towards
Traffic Management of the Future

Antoine de Kort
Rijkwaterstaat
Traffic Management in 2030

Pro-active Network Management

- Facilitating trips from origin to destination
- Monitoring public preconditions (safety, environment)
- Imposing performance requirements on local level

Autonomous Local Traffic Control

- Automated execution of local traffic measures to establish the requested performance
- Vehicles part of traffic system (sensor & actuator)
The key factor: communication
Perspective of the province
Three Traffic Management Centers

- 3 traffic management centers in our Province:
  - City of Amsterdam
  - Rijkswaterstaat (Highways)
  - Province of Noord-Holland (±600 km Regional roads)
- 3x TMC: historical reasons
- No Master: Equality
- Management by scenario.
  - Scenarios often concerns multiple traffic centers.
  - Each scenario has one owner who manage it after consulting the other two TMCS.
  - Regional Tactic Team has license to establish scenarios
- Each TMC has its own technical systems
Advantages (we want)

• Independent of suppliers, more competition
• Less development
• Less realization time
• Less risks by using standards
• Lower investments
• Higher quality and reliability
Technical Aspects
DVM-Exchange
Key Challenges for an interoperability standard

1. Network management (NM) itself is under development
   Waiting is not an option: mutual dependence between development of NM and DVM-Exchange

2. Trade-off between the ideal in theory and what is practically feasible:
   Coping with Legacy Systems
Vision of Network Management
Making current visions implementable

• Hierarchical subdivision of the area
  => NM is a hierarchical management system
• Boundary points at quiet places
• Services apply to effects on traffic in such points (in one driving direction)
Interoperability in three steps

Specific intended effect on traffic

Traffic Services of DVM-Exchange

IT level of DVM-Exchange (XML, Web Services)

Specific details of individual TMS (traffic man. systems)
Properties of traffic at a single point

• Flow, Speed, Density
• Partial Flow per destination / type of vehicle
• Per vehicle:
  – Intended destination / intended route
  – Type of vehicle: person car, truck,
  – Type of traffic: private, Public Transport, ...
  – Type of load of truck: hazardous
  – Number of Occupants
  – ...

...
DVM-Exchange Services / Requests

- Traffic Management Request
  - Point
  - Effect
  - Priority
  - Target group (f.i. traffic with a certain destination, or, public transport)
  - ...

- Rerouting Request
  - Point
  - Effect
  - Destination, intermediate point
  - ...

- Information Request
- Traffic Data Request
- User Defined Requests (backdoor)
Future Challenges for DVM-Exchange

• Way of thinking: Traffic Management expressed in effects in boundary points
• How to handle priorities?
• Incorporating the Scenario concept
• Multi-disciplinary cooperation
  Traffic Engineers, IT Engineers, Policy makers, ...
Organizational aspects

The process – what we have learned & what the future could bring
The sense of urgency

• Let’s be clear: there is a *genuine business reasoning* behind an *industry* initiative for an open standard...

• ...under a considerable pressure from road operators to provide solutions, other than a multitude of ad-hoc adaptations that would be expensive and increase, rather than decrease, vendor-dependency.

• There is a *real common urgency* among market parties to have an open interface, allowing information exchange between traffic systems.
The initiative

• There is a broad tradition of creating standards through extended professional discussions in Europe and the Netherlands...
• ...this process is often fruitful, but mostly slow.
• For DVM-Exchange, we needed *rapid progress*, but at the same time a *maximum acceptance* of the resulting standard.
• How to have an *accepted* standard *within a year*?
The initiative

We wanted -
• Quick results
• Broad market acceptance
• Short-term relevance
• Long-term expandability

We opted for a -
• *Multi-stakeholder* task force
• *Full openness* during all stages of the process
• Limited standard scope
• Close adherence to traffic management concepts, rather than an ICT approach
• Tight planning
• Pre-defined end date.
The experience

• The *multi-stakeholder task force* was quickly formed on the basis of mutual recognition of the urgency.

• *Full openness* was implemented by -
  – publishing otherwise internal reports on our website
  – informally communicating with non-participating parties
  – organizing an open consultancy meeting.

• However, some stakeholder reservations persisted –
  – would non-participating industry accept the standard?
  – do the task force members have an advantage?
  – is there another “catch” somewhere?
The experience

• The limited scope of standardization in this first version caused some concern -
  – would this standard satisfy my specific requirements?
  – can other existing (foreign) standards be considered?
• Many suggestions and concerns were quite valid...
• ...however, we have opted neither to expand the task force, nor the scope...
• ...rather, we have concentrated on having a first document and a proof of concept ready this week.
The follow-up

• The task force has produced a first (in fact a second...) version of the DVM-Exchange standard.
• Three companies are demonstrating a first connected implementation at this exhibition (Booth # 09.211).
• The task force will dissolve in April, tie up a few loose ends and hand over to Connekt/ITS Netherlands.
• Connekt is a public-private platform of which (nearly) all Dutch stakeholders are a member – highly experienced in market-wide cooperation initiatives.
The follow-up

• Connekt will establish a neutral and open platform for all public and private stakeholders to discuss –
  – extending the scope to all traffic management “services” in area-wide road use ("Gebiedsgericht Benutten plus")
  – the link with other standards (OCIT, UTMC…)
  – correcting deficiencies, found in any standard.

• All interested parties will be invited to join…

• ...and you are now cordially invited to celebrate the formal hand-over of DVM-Exchange this afternoon at Booth # 09.211 from 16.30 h (speeches will be in Dutch).