Mobility Data Marketplace

The German approach for the exchange of dynamic traffic data

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History

Innovation Program of the German Federal Government

Metadata Platform Traffic Information

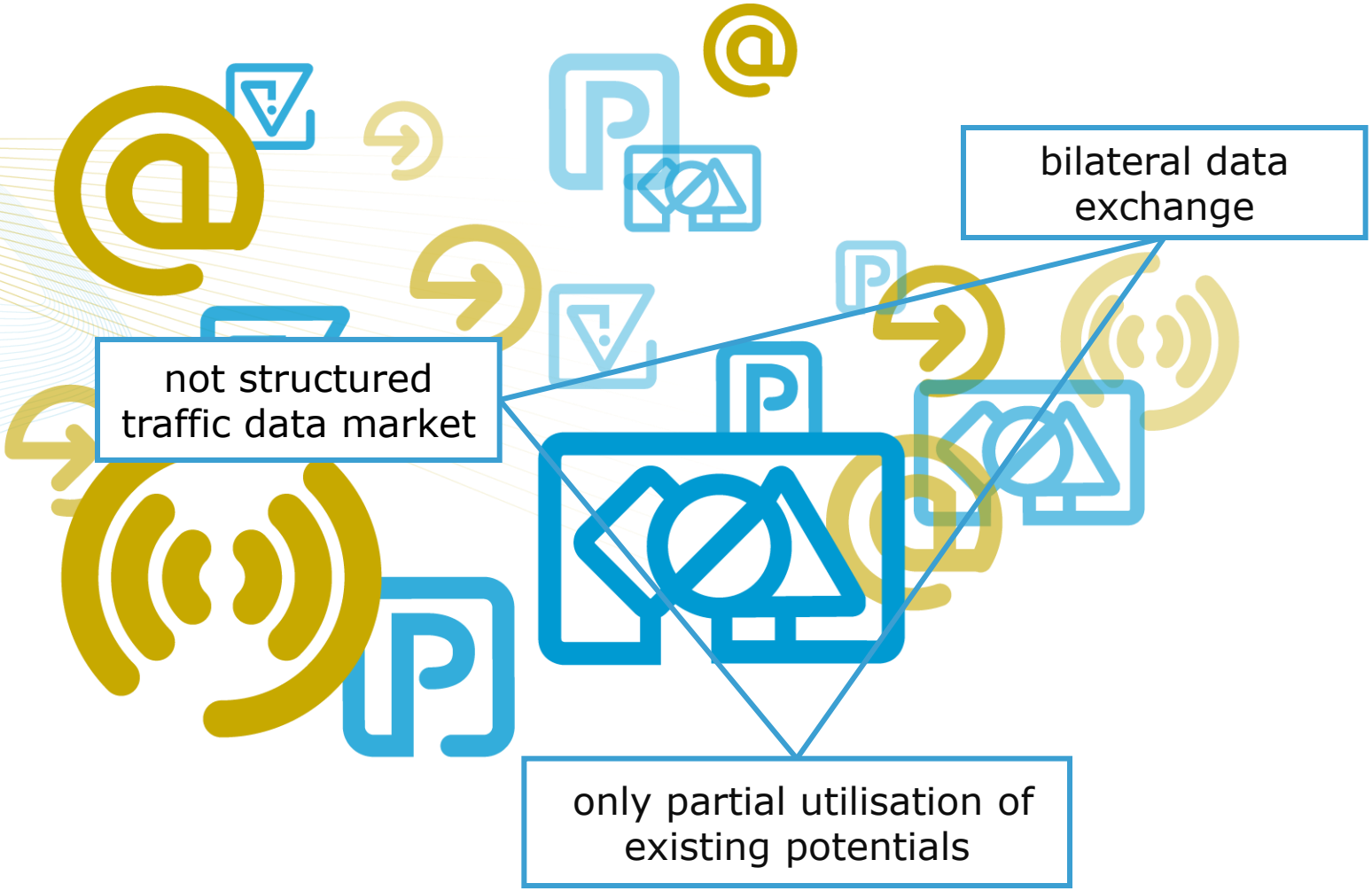
Federal Ministry of Transport, Building and Urban Affairs

Metadata Platform Public Traffic

Metadata Platform Individual Traffic

System

Initial Situation



Goals

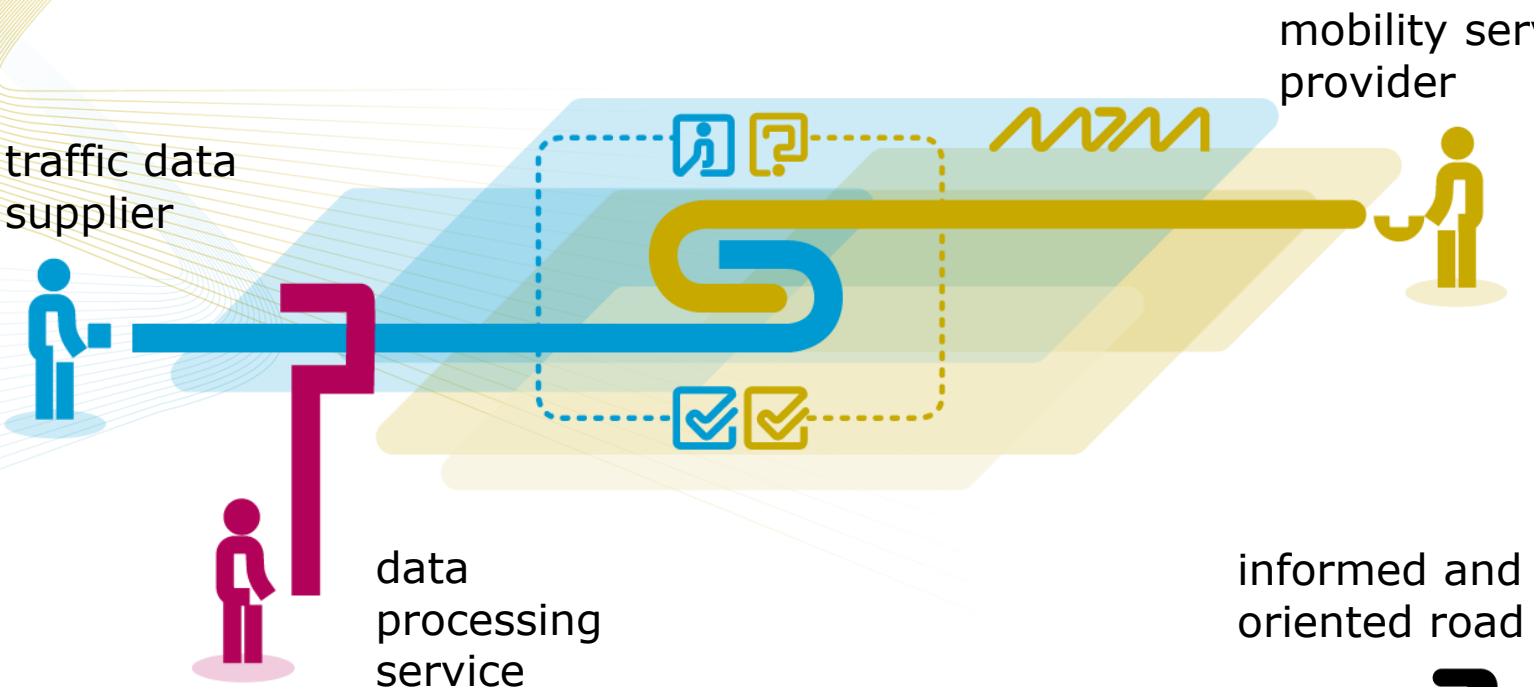
Facilitating of data provision and data acquisition

Simplification of business processes for all actors

New prospects in the field of traffic management for the public road administrations by the simplified data exchange with 3rd parties

New services from private providers

The Mobility Data Marketplace



The Mobility Data Marketplace

Tasks

Creation of a central web portal with structured information on available dynamic traffic data of individual organisations

Functions to offer, search and subscribe to traffic-relevant data

Using standard interfaces and communication procedures for the data exchange between partners

Simplification of business processes for all involved actors, including reduction of technical and organisational effort of the data supplier and data recipient. Opening up substantial potential of existing data sources

> **Low access barriers to secure a high level of attractiveness and acceptance**

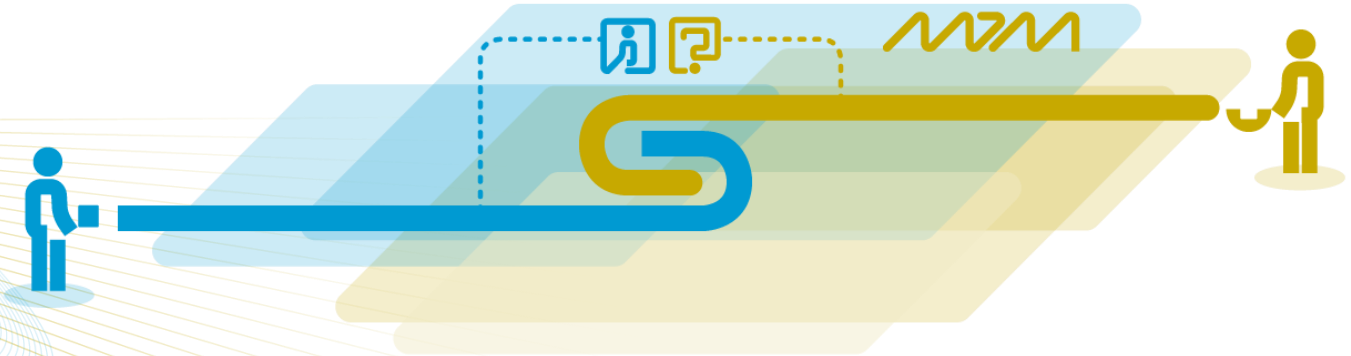
Functional Levels

2 Functional levels:

> **Portal function** (metadata directory)
Interactive website to offer / search / subscribe to data that will be supplied and received via the Mobilty Data Marketplace (MDM)

➢ **Broker function** (Data Distribution)
Online data flow from the data supplier via the MDM to the data recipient

Functional Principle - Data Supplier / Data Recipient



Data supplier describes his offered data on the MDM Portal

> Content: what data (traffic flow, travel times, road works, weather data, etc.)

> Spatial: network related

Data supplier describes the contractual and commercial terms of his offer

Data recipient searches for data offerings in the MDM Portal and may notify further data needs ("data request")

Functional Principle – Data Content

Measured data from traffic and environment detectors, elaborated data e.g. traffic situation, travel times

Traffic management measures, e.g. alternative route recommendations, states of VMS, ...)

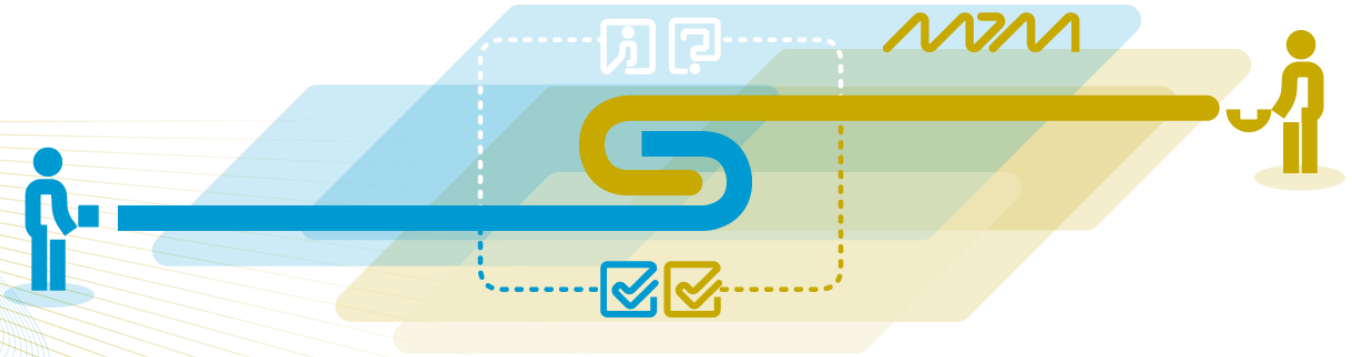
Parking information,
road works

Metadata (specification of equipment and geo referencing)

Hazard & incident message (traffic jams, accident, blockage, ...)

Other data, e.g. weather data, forecasts

Functional Principle - Contracting

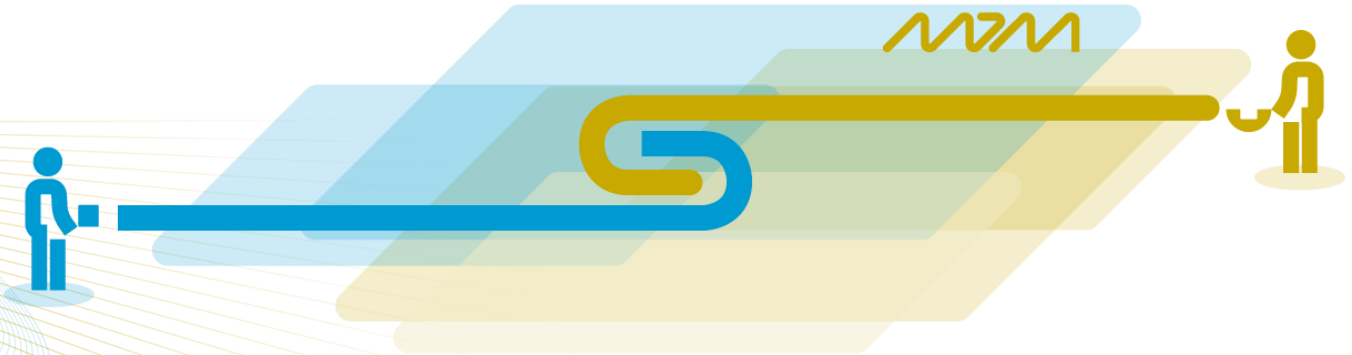


Data supplier and data recipient conclude a contract

Both partners choose technical options for data exchange (push / pull)

Both partners initiate data exchange.

Functional Principle - Broker



Data supplier and data client (recipient) use the MDM brokerage function

> Unfiltered data

> Unmodified data

> Without editing of traffic data

Requirements

Widely used Internet standards are used as communication protocols

XML as a de facto standard should be used for data formats

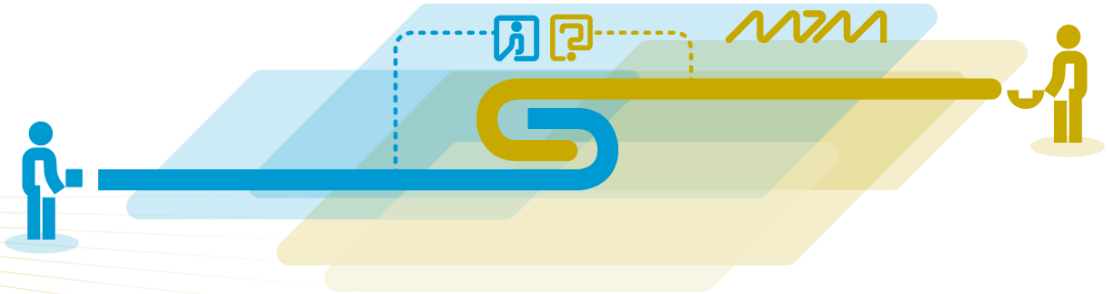
MDM is a pure "delivery platform", no data centre
> No storage of traffic data
> No session management

Data supplier and data client decide independently whether the data will be "pulled" or "pushed"

MDM does not modify user data (filter, converter etc. realised as external services outside the MDM)

Safety requirements
> Data exchange requires authentication by using certificates
> Ensure data integrity using signatures
> Traceability of data delivery (liability, billing)

Services of the Metadata Directory



Registration: data client and data supplier can register to use the services of the MDM

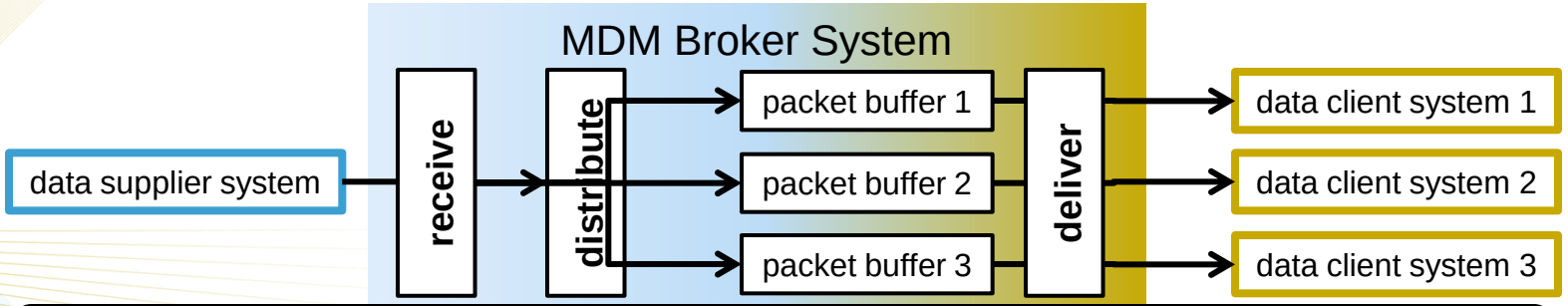
Search: potential data clients can read the data of the metadata directory via the Internet (manual) or web service interface (by machine)

Accounting: data suppliers offer publications, data clients subscribe to publications, amendment and termination of subscriptions

Logging: logging of operating data, query of data for administrative / operational purposes

Billing: logging of data delivery and distribution, query by data supplier and data client for commercial purposes

Functions of the Broker



The MDM broker system receives the data package from the data supplier system

Based on the publication identification of the data package and the entries in the metadata directory, the package is distributed (duplicated) to the respective package buffer of the data client

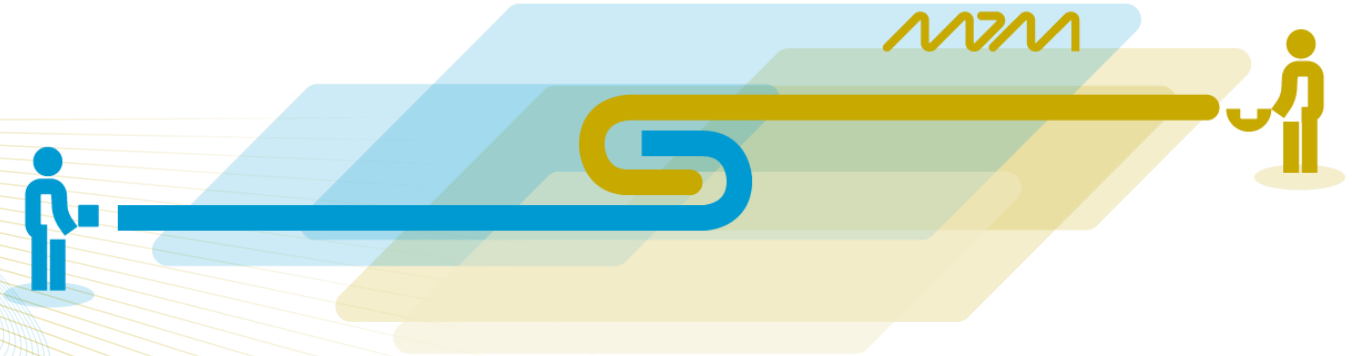
The payload data won't be modified

Interfaces to data supplier and data client are independent and selectable for push or pull mode

The broker keeps only one data package per subscription in the buffer of each data client

- If a up to date package (e.g. 11:30) of a publication arrives, then a older package (e.g. 11:15) will be replaced in the buffer by the newer one
- Dropped packets are lost permanently

Data Formats



The native data format supported by the MDM is DATEX II

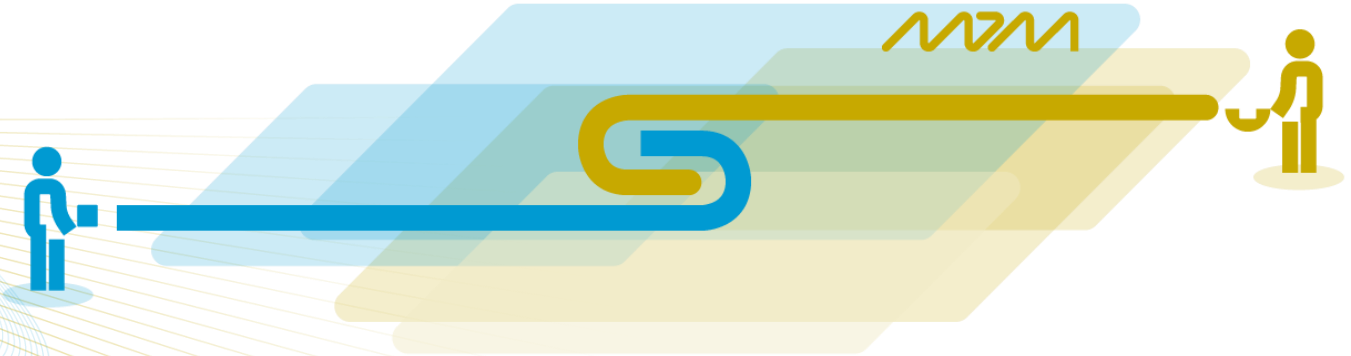
Format conversions as external service outside of the MDM

In addition to DATEX II a so-called container model is intended, to enable the generic transport of any payload in XML format via the MDM

The container model allows for structured data exchange, including important metadata

Containers may in particular contain several data packages with different contents and types of data

Time Frame



Currently:
call for tenders for the system implementation and the operation till 2013

Start of pilot operation: planned for mid 2011

Gain experience and optimisation of the technical and organisational framework during the pilot phase

Creation of technical, organisational and operational basis for a successful sustainable operation from 2013

Thank you for your attention !

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and Urban Affairs