

LL#19 – DEFlog

(Information derived from previous input)

DEFlog is about developing a data sharing platform for exchange of traffic and mobility related data for the logistics sector, especially road transportation. This should lead to:

- Integrated use of actual and reliable traffic and mobility data in Transport Management Systems, Fleet Management Systems and other logistical IT-systems of logistics service providers, leading to more efficient, sustainable and safe road transport operations.
- More efficient and better traffic management by automated use of actual and reliable transport and cargo load data, leading to safer traffic, better throughput, improved accessibility and liveability, and faster clearance of the roads and less costs due to delays and incidents.

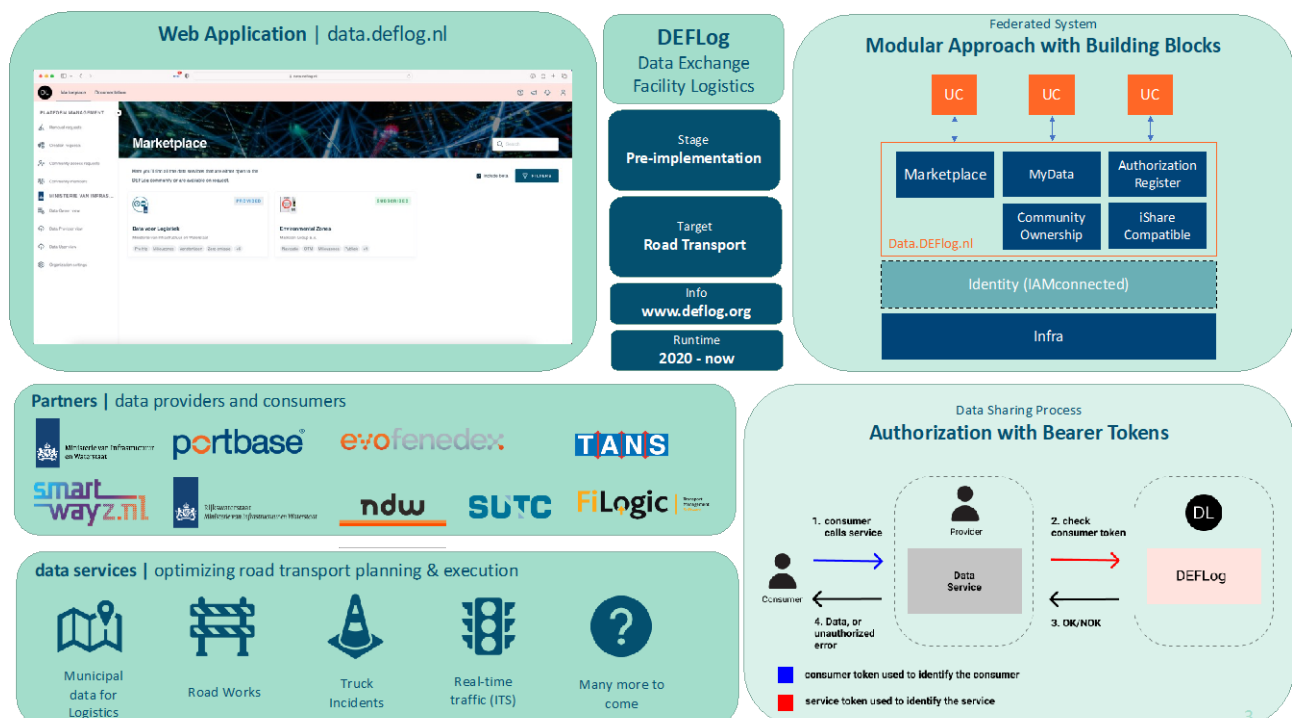
Data flows

Services and interactions in development

- Governmental mobility data for logistics (in the European DATEXII format or another standard) - Sharing of numerous mobility data items in a standardized Open Trip Model data format
- Road Works - Share road works information with logistic sector
- Truck incidents / incident management - Share location and load data of trucks in case of an accident for better and faster incident management
- Real-time traffic (ITS) / Talking Traffic and Connected Transport Corridors - Realtime location sharing of trucks to smart traffic lights and other smart road infrastructure objects

In the further development of DEFlog, the ambition is to follow the infrastructural development of Living Lab 20. This consists of the implementation of nodes on the systems of data holders and data consumers.

IT systems



Numerous IT-systems of governments (local, regional, national, road authorities) are involved, as well as systems of logistic service providers such as planning systems (transport management systems, TMS), on-board computers (fleet management systems - FMS/rFMS - and order apps), digital tachograph systems, navigation systems, control towers and advanced planning and scheduling systems (APS). Sequence diagrams aren't available yet, this work will be done in 2023.

In the current state of DEFLog, some elements of the FEDeRATED reference framework have already been implemented and/or taken into account into the current version of DEFLog:

- Language (application of the OTM data model with data transformation happening at the level of data owners or data service providers)
- Data at source (events, queries). Data is being linked to (i.e. the centralized DEFLog platform shares and manages authorizations, not the raw data).
- Findability. Service registry is available at data.deflog.nl
- Identification and authentication based on JSON web tokens (JWT) with OAuth2.0. Using modular IAMconnected identification and authentication framework of Portbase (iShare compatible)
- Visibility and index. Searchable service registry and index is available at data.deflog.nl

Other aspects are still open for development such as:

- Language (application of the FEDeRATED semantic model, data transformation, semantic adapter)
- Findability. Service registry, semantic endpoints, triples (RDF) and SPARQL.
- Identification and authentication. Allowing other identity and authentication providers to work on the platform (modularity). Using iShare standard to higher degree.
- Node configuration

This work will be planned in 2023 and 2024, as an element of the development of the BDI (LL#20)

Implementation of the concept

The following options are feasible, please select the relevant option:

- A new platform and an infrastructure of interconnected nodes using the samen technology for each node - DEFLog is a centralized platform that manages and shares the authorizations on various data services in the domain of traffic and mobility. The data itself stays at their respective source locations – only links and authorizations to the data are shared across the platform – therefore it approaches the concept of interconnected infrastructure.
- Adapter with data transformation - Stakeholders in the network gain access to data sets and services through regular APIs (mostly RESTful APIs). DEFLog does not store the data to be shared but only the authorizations to gain access to the data. The need for an adapter will be further investigated.
- Multiple brokers/holders operated by third parties, interconnected - The DEFLog platform connects multiple private and public parties, that have concurrent roles of dataowner, data provider and data consumer
- Identity and authentication - The DEFLog platform currently uses the modular IAMconnected identity and authentication provider, provided by Portbase as a standalone (that is, third-party) identity provider. In the future, also other identify and authentication providers may be used to gain access to the

The objective is to create a complete meshed network of BDI nodes, constituting the BDI (Basic Data sharing Infrastructure). For further information about the lay out, functionality and patterns, please see the lay out stated in living lab 20. Like in living lab 20, the development of the functionality will be phased. This is currently under investigation