


THE DATA COOPERATION CANVAS


Overview

Organizational


Key partners
Who are the partners involved in the data exchange? What are their roles?




Resources
What organizational resources are required for this data cooperation? What resources are available already? What needs to be done to get all required resources?



Business case
What are the costs of the data exchange? Who is paying? What are the revenues? Who is profiting? What compensation, fees or other financials are needed?




Governance model
How are rules, norms and actions structured/sustained/regulated to control the data exchange?




Shared processes
What steps are performed as a shared process in the data exchange? What steps are done individually?

	Individual	Shared
Use	<input type="checkbox"/>	<input type="checkbox"/>
↑ Visualize	<input type="checkbox"/>	<input type="checkbox"/>
↑ Interpret	<input type="checkbox"/>	<input type="checkbox"/>
↑ Combine	<input type="checkbox"/>	<input type="checkbox"/>
↑ Transform	<input type="checkbox"/>	<input type="checkbox"/>
↑ Store	<input type="checkbox"/>	<input type="checkbox"/>
↑ Create	<input type="checkbox"/>	<input type="checkbox"/>




Why?


Context
What is the business context that creates the opportunity/necessity for data exchange?



Added value
Why will this data cooperation succeed? What is the added value for participants?




Motivation & objectives
What is the motivation for the key partners to join the data exchange? What are their main objectives of participating?




Technical


Data & data sources
What data is exchanged? What data sources are used?




Interoperability
How can the data be uniformed/standardized/combined? What shared concepts, languages, formats, or methods can be used? Is it hard to combine all the data? Or are standard definitions available? What data standards & formats are used or need to be used?



Implementation roadmap
What approach will be used for realizing and implementing the data exchange?




Technical concepts/models
What technical concepts or models need to be in place for the data exchange. What MIMs are implemented and how are they implemented?




Infrastructure characteristics
What technical infrastructure is needed for the data exchange?

- What cloud/server infrastructure is used
- What technology stack is used
- What standard software is used?
- In-house development or external parties?
- Central/decentral/distributed model
- How can be connected (API, feeds, downloads, etc.)



Current status
What is the current status of the cooperation?

Exploratory stage Preparatory stage Implementation stage Operational stage Scaling stage




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Template

Organizational


Key partners




Resources



Business case




Governance model



Why?

Shared processes


	Individual	Shared
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Context



Added value



Motivation & objectives



Technical


Data & data sources




Interoperability




Implementation roadmap



Technical concepts/models




Infrastructure characteristics



Current status

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Exploratory stage	Preparatory stage	Implementation stage	Operational stage	Scaling stage		

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Example

Organizational

Key partners

- NDW (National Datawarehouse on road traffic)
- City of Amsterdam, Traffic Department
- City of The Hague, Traffic Department
- Province of North Holland
- Rijkswaterstaat (National Road Authority)

Resources

- A national platform/database on mobility data (including floating car data) is available (NDW)
- A coalition of data science developers associated with the NDW

Business case

The road authorities invest in IDEA to create high quality data. This data will improve the information to road users (through the service providers) and may be used to efficiently control subcontractors. It is financed by all road users in an existing nationwide cooperation.

Governance model

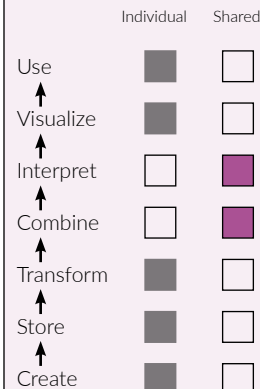
IDEA is open to all road authorities in The Netherlands. The resulting data feed is available for free for all service providers.

NDW is technical lead, and through its member structure, a steering committee, represented by all key partners, makes decisions about IDEA.

A user group is being set up to govern the functional parts.

Shared processes

IDEA combines all data and adds a validation status based on the real-time actual traffic situation. Each partner can visualize and use this information. Navigation service providers, for example, will bring this to road users.



Why?

Context

Road authorities (local and national) have open data on road works. This data about the planned road works may differ from the actual road works due to f.e. subcontractors. The actual period of delay of closure due to road works could be hours or days off from the open data.

Added value

Service providers and road authorities want to have data on **actual** road works.

By validating the planned road works, using live data (from floating car data (FCD)), IDEA generates a high quality, real-time data feed for road works.

Motivation & objectives

Providing high quality, real time data on road works. **Service providers** can provide better information to road users. **Road authorities** have insight into their road works' actual impact. For example to check on subcontractors.

Technical

Data & data sources

Input data

- Planned dates and details for road closures and construction works from local, regional and national road authorities.
- Floating Car Data from one national service provider
- Feedback data on validated IDEA-data from service providers

Output data

- Validated high quality data for road closures and construction works

Interoperability

- All road authorities enter their planned data using only a handful of software, which is aggregated on a national level by NDW and converted to the DATEX-II format.
- All road authorities and service providers are familiar to the DATEX-II format, an European standard for road- and traffic related data.
- Because of using different map, roads and road segments may need to be mapped by the users of the IDEA-data, based on the geometry.

Implementation roadmap

1. Local pilot, directly based on the national platform, so a nationwide implementation is (technically) easy
2. Create sponsorship on a national level (organizational + financial)
3. Deploy IDEA for all road authorities in the Netherlands

IDEA is currently preparing for phase 3

Technical concepts/models

- The validation algorithm is using machine learning
- Input and output feeds are using simple REST APIs
- Identity Management is done by NDW using Keycloak

Infrastructure characteristics

- A central cloud solution is used (Microsoft Azure infrastructure)
- Python is used as the main language for development, while in the scaling stage parts will be ported to Java
- Development is a cooperation between in-house development teams and external companies

Current status

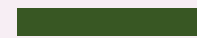
IDEA is in the *Operational Stage*



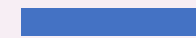
Exploratory stage



Preparatory stage



Implementation stage



Operational stage



Scaling stage