



Interoperability Demonstrators & EAP

Mobility Data Days
Budapest, 9th November 2023



Introduction and agenda

- WG2 – Task 2.4: NAP Interoperability demonstrators – objectives
- Sequence of presentations:
 1. **Metadata demonstrator**
 - Speakers: Peter Lubrich (DE) and Sara Linhas (PT)
 2. **Alternative Fuels demonstrator**
 - Speakers: Sara Linhas (PT)
 3. **Interchange demonstrator**
 - Speakers: Christian Von Huth (DK) and Kenneth Sorensen (NO)
 4. **Marketplace demonstrator**
 - Speakers: Maryse Bücking (NL)
 5. **Paper on data discoverability and accessibility**
 - Speakers: João Montenegro and Lígia Conceição (Armis, PT)



NAPCORE Mobility Data Days

NAP Architecture & harmonization

Work item 2.4.4 Interoperable NAP demonstrator with Metadata

NAPCORE Mobility Data Days

9 November 2023

Peter Lubrich (BASt, DE), Sara Linhas (ARMIS, PT)

Agenda

- Context / Goal / Why the harmonization is needed
- Conceptualisation
- Solution Design
- Use Case Analysis
 - Use case 1: OVERVIEW NAP DATASETS
 - Use case 2: FILTER THE AVAILABLE DATA BY CATEGORY
- Next Steps – Metadata Demonstrator

Context

Time planning:

- 1 January 2023 – 31 December 2024

Partners:

- Lead: DE, PT
- Active: AT
- Follower: CY, MT, LT

Goals

- Align Metadata descriptions from multiple NAPs
- Make Metadata from multiple NAPs visible/searchable
- A showcase of a (future) European Access Point
- Prove-of-value for “mobilityDCAT-AP” metadata spec

Why the Harmonization is needed

- Significant disparities in structural configurations and data access interfaces
- Metadata provides an automatized solution for data extraction starting with the dataset harmonized description

Conceptualisation

- Some NAPs already provide metadata in DCAT-AP format!

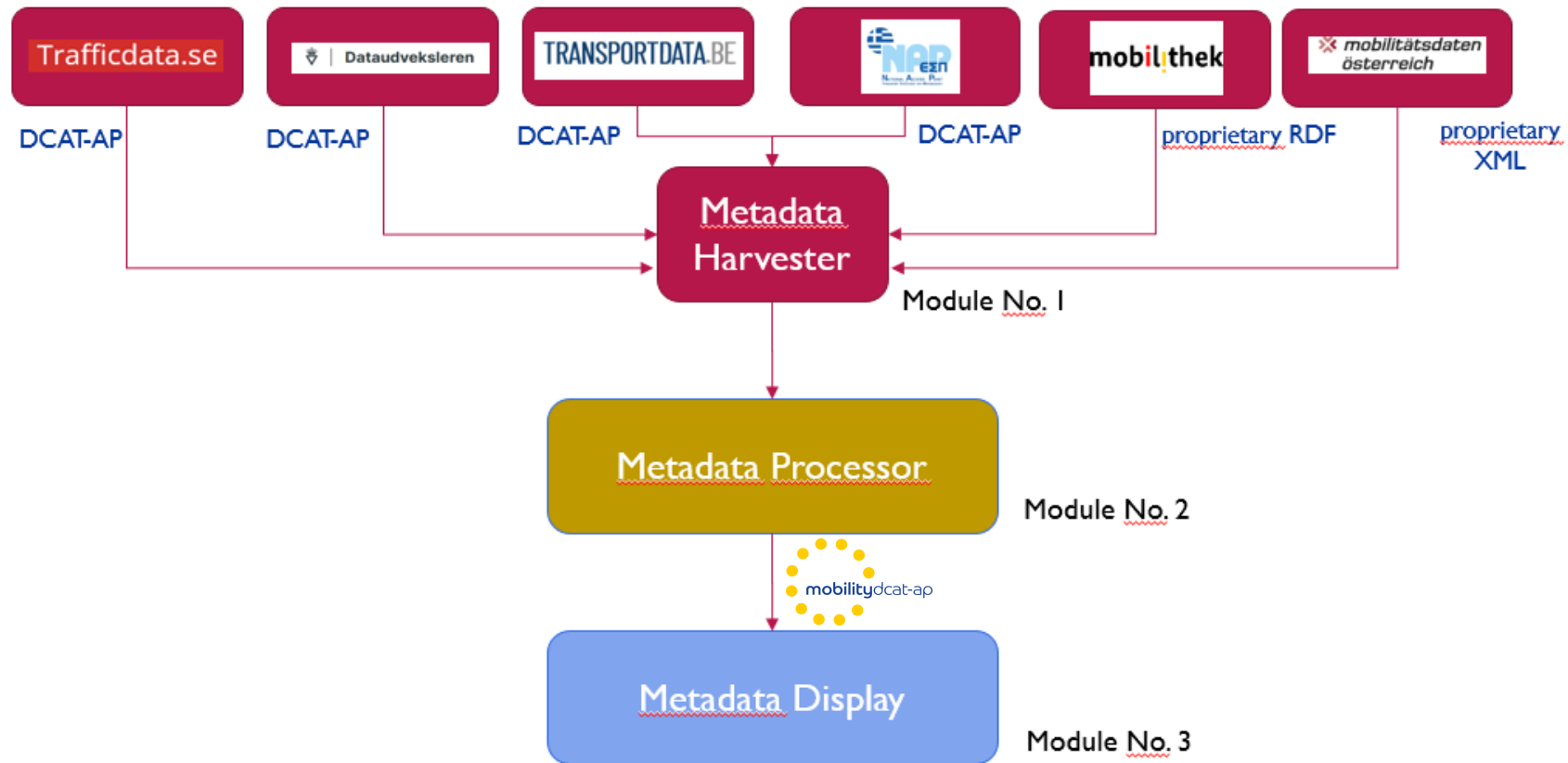
The image shows a screenshot of the Trafficdata.se website. The top navigation bar includes 'Datasets', 'Organizations', 'FAQ', and 'About'. A search bar is present on the right. The main content area is divided into two columns. The left column shows search results for 'Road work information, Road works', listing 7 datasets. The right column shows a detailed view of the dataset 'Road work information, Road works' from the organization 'TRAFIKVERKET'. The dataset page includes a description, organization information, and a 'Data and Resources' section with links for 'API/xml' and 'API/json'. A code editor window in the foreground displays the DCAT-AP metadata for the dataset, including fields like 'dc:language', 'dc:spatial', 'dc:keyword', 'dc:modified', 'dc:contactPoint', 'dc:networkCoverage', 'dc:datasetLanguage', 'dc:updateFrequency', 'dc:publisherEmail', 'dc:publisherWebsite', 'dc:contactPointOrganization', 'dc:contactPointEmail', 'dc:qualityIndicator', 'dc:areaCovered', and 'dc:networkCoverage'.

Conceptualisation

- Preliminary metadata inventory (shapshot of August 22, 2022)

NAP	# of datasets ?	DCAT-AP schema ?	How to retrieve?	Remarks
Trafficdata.se*	49	DCAT-AP + extensions („ext:...“)	Manual download (RDF XML per dataset)	Extensive usage of „dcat:keyword“
du-portal- ui.dataudveksler.app. vd.dk	26	DCAT-AP	Manual download (RDF XML for all datasets)	Extensive usage of „dcat:keyword“
transportdata.be	123	DCAT-AP	Manual download (RDF XML per dataset)	Extensive usage of „dcat:keyword“
data.nap.gov.gr	34	DCAT-AP	Manual download (RDF XML per dataset)	Extensive usage of „dcat:keyword“
mobilithek.info	> 7000	Proprietary RDF model, compatible with IDS and DCAT-AP + extensions („mdp:...“)	API access (RDF XML per dataset or for all datasets)	
mobilitydata.gv.at	40	Proprietary XML model	Not yet	API in progress

Solution Design



Solution Design

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 - 2.2 mobilityDCAT-AP Overview
- 3. **Application Profile Classes**
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 - 3.2 Recommended Classes
 - 3.3 Optional Classes
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 - 4.1.1 Recommended properties for Address (Agent)
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mobilityDCAT-AP - Version 1.0.0

A mobility extension for the DCAT application profile for data portals in Europe



NAPCORE Recommendation 16 October 2023

This version:

<https://w3id.org/mobilitydcat-ap/releases/1.0.0/>

Latest published version:

<https://w3id.org/mobilitydcat-ap/releases/>

Latest editor's draft:

<https://w3id.org/mobilitydcat-ap/drafts/latest/>

Previous version:

<https://w3id.org/mobilitydcat-ap/drafts/1.0.0-draft-0.1/>

Latest Recommendation:

<https://w3id.org/mobilitydcat-ap/releases/1.0.0/>

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[NAPCORE Sub-Working Group \(SWG\) 4.4](#) ([NAPCORE \(National Access Point Coordination Organisation for Europe\) Organization](#))

Participate:

[GitHub mobilityDCAT-AP/mobilityDCAT-AP](#)

[File a bug](#)

[Commit history](#)

[Pull requests](#)

Document status:

Completed

Document version:

1.0.0

Solution Design



- **mobilitDCAT-AP**: a metadata specification for National Access Points and other mobility data portals
- Outcomes: conceptual model, logical model, technical documentation, user support, maintenance & governance
- Target group: deployers and hosts of European NAPs and other data portals
- 1st release: October 2023
 - <https://w3id.org/mobilitydcat-ap/releases/>

Solution Design

- Field-by-field mapping

Field	Convert	GR	DE	TARGET: mobilityDCAT-AP
Name	OK	<dct:title>/dct:title>	<ids:title>/ids:title>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-title
Keywords	TBD	<dcat:keyword>/dcat:keyword>	<ids:keyword xml:lang="de">/ids:keyword>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-keyword
Description	OK	<dct:description>/dct:description>	<ids:description>/ids:description>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-description
Metadata Date	OK	<dct:issued rdf:datatype="">/dct:issued>	<ids:created rdf:datatype="http://www.w3.org/2001/XM	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#catalogue-record-creation-date
Dataset Language	OK	-	<ids:language>/ids:language>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-language
Update Frequency	OK	-	<ids:accrualPeriodicity>/ids:accrualPeriodicity>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-frequency
Publisher	OK	<dct:publisher>/dct:publisher>	<ids:publisher>/ids:publisher>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-publisher
Contact Point	SKIP	<dcat:contactPoint>/dcat:contactPoint>		
Quality Indicator	SKIP		<mdp:qualityDescription>/mdp:qualityDescription>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-quality-description
Area Covered	TBD		<ids:spatialCoverage>/ids:spatialCoverage>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-spatial-coverage
Transport Modes	TBD		<mdp:transportMode>/mdp:transportMode>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-transport-mode
Conforms to (data format)	TBD	<dct:format>/dct:format>	<ids:mediaType>/ids:mediaType>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#distribution-format
Category	TBD		<mdp:dataCategory>/mdp:dataCategory>	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#dataset-category
Access URL	OK	<dcat:accessURL rdf:resource="" />	<ids:accessURL rdf:resource="" />	https://mobilitydcat-ap.github.io/mobilityDCAT-AP/drafts/latest/#distribution-access-url

Solution Design


- How the mapping was done – Example from SE NAP

```
<dc:keyword>Act B</dc:keyword>  
<dc:keyword>Datex</dc:keyword>  
<dc:keyword>Speed limits</dc:keyword>
```

```
<ext:networkcoverage  
rdf:resource="http://trafficdata.se/definitions/networkcoverage/motorways"/>
```

Traffic signs expressing traffic regulations and identifying dangers, Speed limits

Data and Resources

 **Datex**
Datex is the Swedish Transport Administration resource for Traffic signs... [Explore](#)

Act B Datex Speed limits

Additional Info

Field	Value
Description	Traffic signs expressing traffic regulations and identifying dangers from the Swedish Transport Administration. Datex
Metadata date	2019-12-04
Dataset language	English
Update frequency	On occurrence
Publisher email address	datex@trafikverket.se
Publisher website	www.trafikverket.se
Contact Point Organisation	Trafikverket
Contact Point email address	datex@trafikverket
Quality indicator	Best effort
Area covered	Sweden
Network Coverage	<ul style="list-style-type: none">MotorwaysArterial roads
Transportation modes covered	
Conforms to	
Category	Traffic signs expressing traffic regulations and identifying dangers - Act B-Speed limits

Solution Design

- How the mapping was done – Example from SE NAP

```
<deat:keyword>Act B</deat:keyword>
<dcatap:applicableLegislation
rdf:resource="http://data.europa.eu/eli/reg_del/2022/670/oj">

<deat:keyword>Datex</deat:keyword>
<mobilitydcatap:mobilityDataStandard
rdf:resource="https://w3id.org/mobilitydcap/mobility-data-standard/datex-II"/>

<deat:keyword>Speed limits</deat:keyword>
<mobilitydcatap:mobilityTheme rdf:resource="https://w3id.org/mobilitydcap/mobility-theme/dynamic-speed-limits">
```

```
<ext:networkcoverage
rdf:resource="http://trafficedata.se/definitions/networkcoverage/motorways"/>
<mobilitydcatap:networkCoverage rdf:resource="https://w3id.org/mobilitydcap/network-coverage/motorways"/>
```

Traffic signs expressing traffic regulations and identifying dangers, Speed limits

Data and Resources



Datex

Datex is the Swedish Transport Administration resource for Traffic signs...

Explore

Act B Datex Speed limits

Additional Info

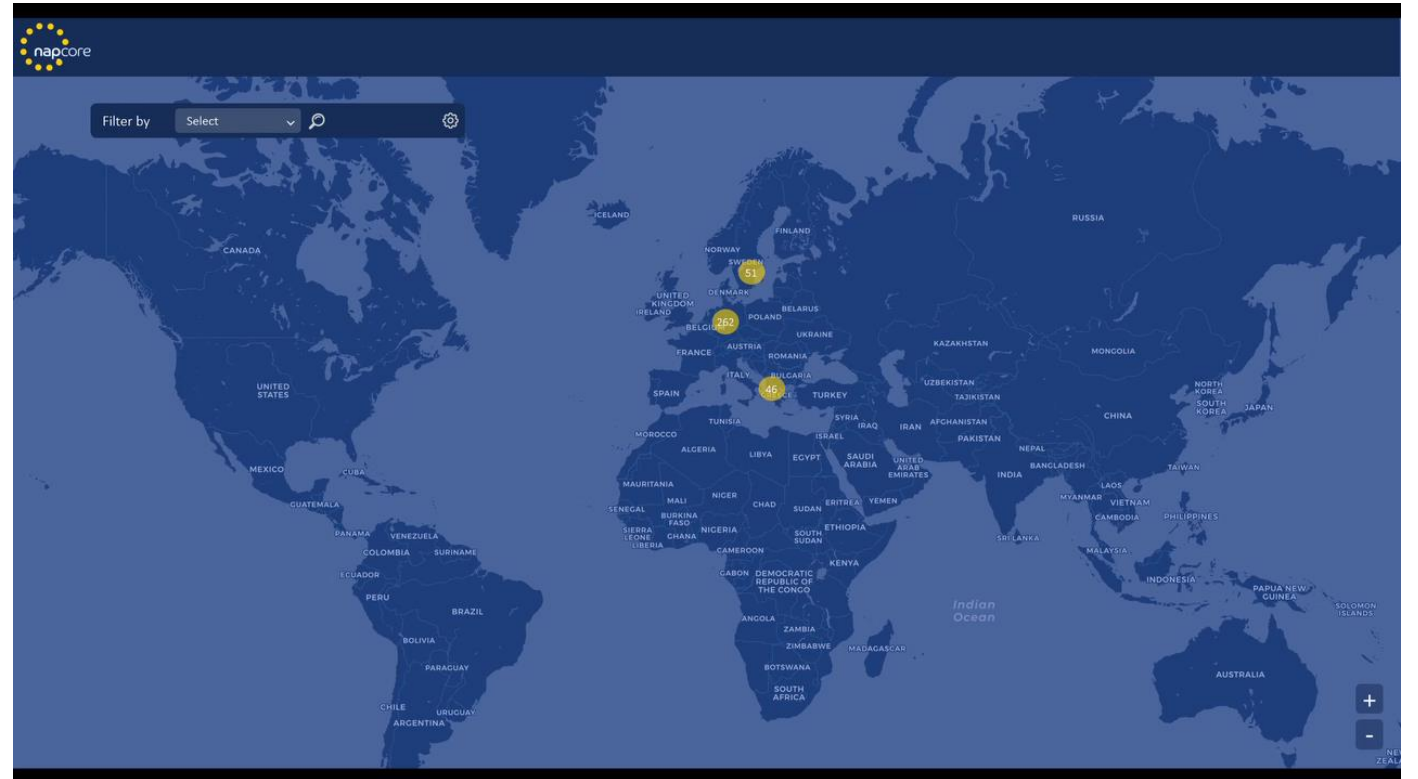
Field	Value
Description	Traffic signs expressing traffic regulations and identifying dangers from the Swedish Transport Administration. Datex
Metadata date	2019-12-04
Dataset language	English
Update frequency	On occurrence
Publisher email address	datex@trafikverket.se
Publisher website	www.trafikverket.se
Contact Point Organisation	Trafikverket
Contact Point email address	datex@trafikverket
Quality indicator	Best effort
Area covered	Sweden
Network Coverage	<ul style="list-style-type: none">MotorwaysArterial roads
Transportation modes covered	
Conforms to	
Category	Traffic signs expressing traffic regulations and identifying dangers - Act B-Speed limits

Use Case I - OVERVIEW NAP DATASETS

- Definition: As a Service Provider, to grasp which countries have an easily available metadata description of the dataset, organized by geographical area, so that a product can be designed that is capable of extracting data across borders.
- Preparatory Stage:
 - Limited to 5 NAPs
 - Limited fields to be extracted to the following:
 - Name, Description, Metadata Date, Dataset Language, Update Frequency, Publisher, Contact Point, Quality Indicator, Conforms to (data format), Access URL
 - Extracted either the datasets metadata either from single file or by going through each dataset metadata file (depending on the NAP)

Use Case I - OVERVIEW NAP DATASETS

- Extracted Metadata from NAPs identified over 300 datasets
- Extracting and Processing NAPs metadata phase is a time consuming process:
 - Extraction might fail for changes in NAPs access (e.g. URL changes in GET request, wrong API access)
 - Initial validation step requires a constant comparison with each NAP interface > wrong number of datasets, is it the Extraction URL? > no metadata, is it non-existent or was it the extraction that failed for a specific metadata dataset
 - Missing fields, different resources mentioned in the NAP metadata leads to the need of a field-by-field comparison
- Empty fields in metadata in NAPs (e.g. Quality Indicator)
- Possible to propose a Quality Indicator for the metadata structure

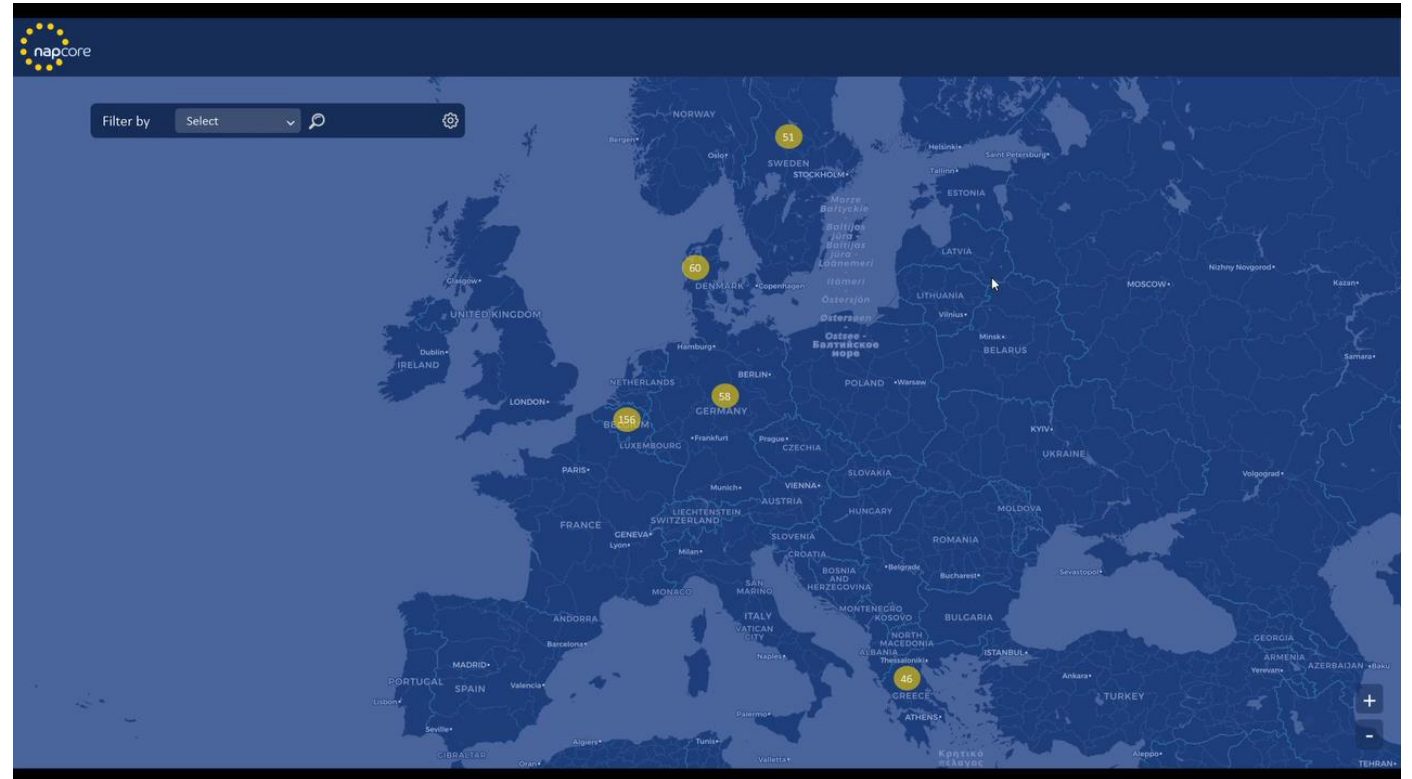


Use Case 2 - FILTER THE AVAILABLE DATA BY CATEGORY

- Definition: As a Service Provider, to have access to up-to-date metadata that is organized according to a certain category/topic (e.g. Alternative Fuels) so that the characteristics of said dataset (format of the data, updated timeframe) can be analysed.
- Preparatory Stage:
 - Characterization of the Category defined by the usage of the terms:
 - Electric Vehicle
 - Charging station / CPO
 - Hydrogen
 - LNG / CNG
 - Note: did not consider additional terminologies for similar Alternative Fuels concepts nor Language variations

Use Case 2 - FILTER THE AVAILABLE DATA BY CATEGORY

- About 10 datasets of returned results
- The full text search - a text search index for a specific term or phrase - using the Title and Description field provided acceptable results
- Validate the flexibility of metadata in increasing data discoverability
- Data discoverability can be used both in metadata repository as well as in data platform NAP types, as long as there is a public available access to the datasets metadata



Use case Results

- Observed Demonstrator Limitations

- Extracting and Processing phase time latency prevent real-time update of metadata datasets
- Manual addition of each NAP access API URL – no interface for NAP MS control
- Only prepared for two modules of metadata extraction:
 - Extract metadata from single file concerning all NAP datasets
 - Extract metadata using CKAN API to obtain list of datasets and proceed to extract metadata from each existing dataset

- Observed NAP Limitations

- Lack of harmonized metadata forces field-by-field validation when integrating each NAP. DCAT-AP format enabled an easier identification of gaps
- Ease to scale the proof-of-concept (POC) demonstrator depends on a well documented and available metadata extraction API
- Registration entails additional steps when extracting metadata – not used for this POC. Data extraction from the data sets is different from the metadata of the same datasets

Member State	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	GR	HU	IE	IT	LV	LT	LU	MT	NL	NO	PL	PT	RO	SK	SI	ES	SE	CH	UK
Documented API for metadata	Red	Green	Red	Red	Red	Red	Green	Red	Red	Green	Green	Red	Green	Red	Red	Red	Red	Red	Red	Red	Green	Red	Red	Red	Red	Red	Red	Green	Red	Green
Metadata in dcat format	Red	Green	Red	Red	Red	Red	Green	Red	Red	Red	Green	Green	Red	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Green	Red	Red

Next Steps – Metadata Demonstrator

- Improve mapping tables in the metadata Processor module
 - multiple national NAP Metadata Schemes (mostly DCAT-AP) → harmonized/ European NAP Metadata Scheme (mobilityDCAT-AP)
- Improve Extraction module times (possible solution introduce a versioning control of the metadata of datasets across NAPs)

Provide Input for WG2 tasks:

- **NAPCORE WG2 Task 2.1 - Level's of service of NAPs**
 - Provide an example on how the different NAP's Levels of service affect the automatization and dissemination of data (through their metadata availability and structure) on a European scale. Additionally, how to develop a new/adjust KPI focus on metadata.
- **NAPCORE WG2 Task 2.2 - Definition of requirements concerning data standards, reference profiles, metadata and support tools**
 - Provide an example on how the different NAP's Levels of service affect the automatization and dissemination of data (through their metadata availability and structure) on a European scale .
- **NAPCORE WG2 Task 2.3 - NAP Reference Architecture**
 - Understand how the current NAP architectures are “compatible” to this solution, and identify the NAP architectures limitations. The outcomes of this Metadata demonstrator will help build the NAP Reference Architecture.

Thanks

Do you have any questions?

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NAPCORE Mobility Data Days

NAP Architecture & harmonization

Work item 2.4.6 Alternative Fuels Demonstrator

NAPCORE Mobility Data Days

9 November 2023

Ligia Conceição & Sara Linhas (ARMIS, PT)

Alternative Fuels NAP demonstrator

- Goals & Purpose
- Challenges – Data
- Solution Design Concept
- Current Status
 - Limitations of the demonstrator
 - Availability of Alternative fuels Data
- Next Steps

Goals & Purpose

- Explore the required elements for the development of a common EU Access Point for alternative fuels data, creating a common interface that would act as a data gateway linking all MS NAPs in a single web platform
- Explore how both static and dynamic could be made available and accessible at European level, without creating storing duplicities with Member States' NAPs repositories, considering NAP format and need for harmonisation (linked to other VVG activities)
- Consider EAFO as the web platform that would host this common EU Access Point in the future, which as part of its current development and evolution would be equipped with the corresponding technical elements to this end

Challenges – Data

Alternative Fuels data is defined as data related to:

- availability of recharging points and stations for electric vehicles;
- availability of refuelling points and stations for alternative fuel types (Hydrogen, LNG, CNG,...)
- location of recharging points for electric vehicles and the conditions for their use;

Data Provision (DR 2023/1804 – AFIR Art.20)

- Art. 20(2) Operators of recharging and refuelling points to provide **static and dynamic data** through their National Access Points (NAPs) at no cost.
 - **Static:** *geographic location, number of connectors, no. of parkings for persons with disabilities, contact information, opening hours. For recharging only: identification code of operator, type of connector, current (DC or AC), max power output of station and point (kW), vehicle type compatibility.*
 - **Dynamic:** *operational status, availability, ad hoc price, 100% renewable electricity supply contract*

Availability of Alternative Fuels data

Implementation status – Survey from the IDACS project in 2020

- Regarding EV charging points, this was the scenario found for static and dynamic data availability:



Which static data is available on the NAP?	AT	BE	CZ	ES	FR	GER	GR	HR	HU	LT	LUX	NL	PL	PT	SI
- Location GNSS coordinates	Green	Green	Red	Red	Green	Red	Green	Red	Green	Green	White	Green	Red	Red	Red
- Location Address (street name, zip code, city,...)	Green	Green	Red	Red	Green	Red	Green	Red	Green	Green	Green	Green	Red	Red	Red
- Available charge-solutions (power, modes)	Green	Green	Red	Red	Red	Red	Green	Red	Red	Red	Green	Green	Red	Red	Red
- Available connectors (plugs, sockets, induction plate..)	Green	Green	Red	Red	Green	Red	Green	Red	Green	Green	Green	Green	Red	Red	Red
- Opening hours	Green	Green	Red	Red	Green	Red	Green	Red	Green	Red	Red	Green	Red	Red	Red
- Identification and Payment methods	Green	Green	Red	Red	Green	Red	Green	Red	Red	Red	Red	Green	Red	Red	Red
- Contact info for owner/operator	Green	Green	Red	Red	Green	Red	Green	Red	Red	Green	Green	Green	Red	Red	Red
- Full e-mobility code of the charging point (outlet)	Green	Red	Red	Red	Green	Red	Green	Red	Red	Red	Red	Green	Red	Red	Red
Which dynamic data is available on the NAP?	AT	BE	CZ	ES	FR	GER	GR	HR	HU	LT	LUX	NL	PL	PT	SI
- Availability (operational / non-operational)	Green	Green	Red	Red	Red	Red	Green	Red	Red	Green	Green	Green	Red	Red	Red
- Occupation status (free / occupied)	Red	Red	Red	Red	Red	Red	Green	Red	Red	Green	Green	Green	Red	Red	Red
- Price for ad-hoc charging	Green	Red	Red	Red	Red	Red	Green	Red	Red	Red	Red	Red	Red	Red	Red

Availability of Alternative Fuels data

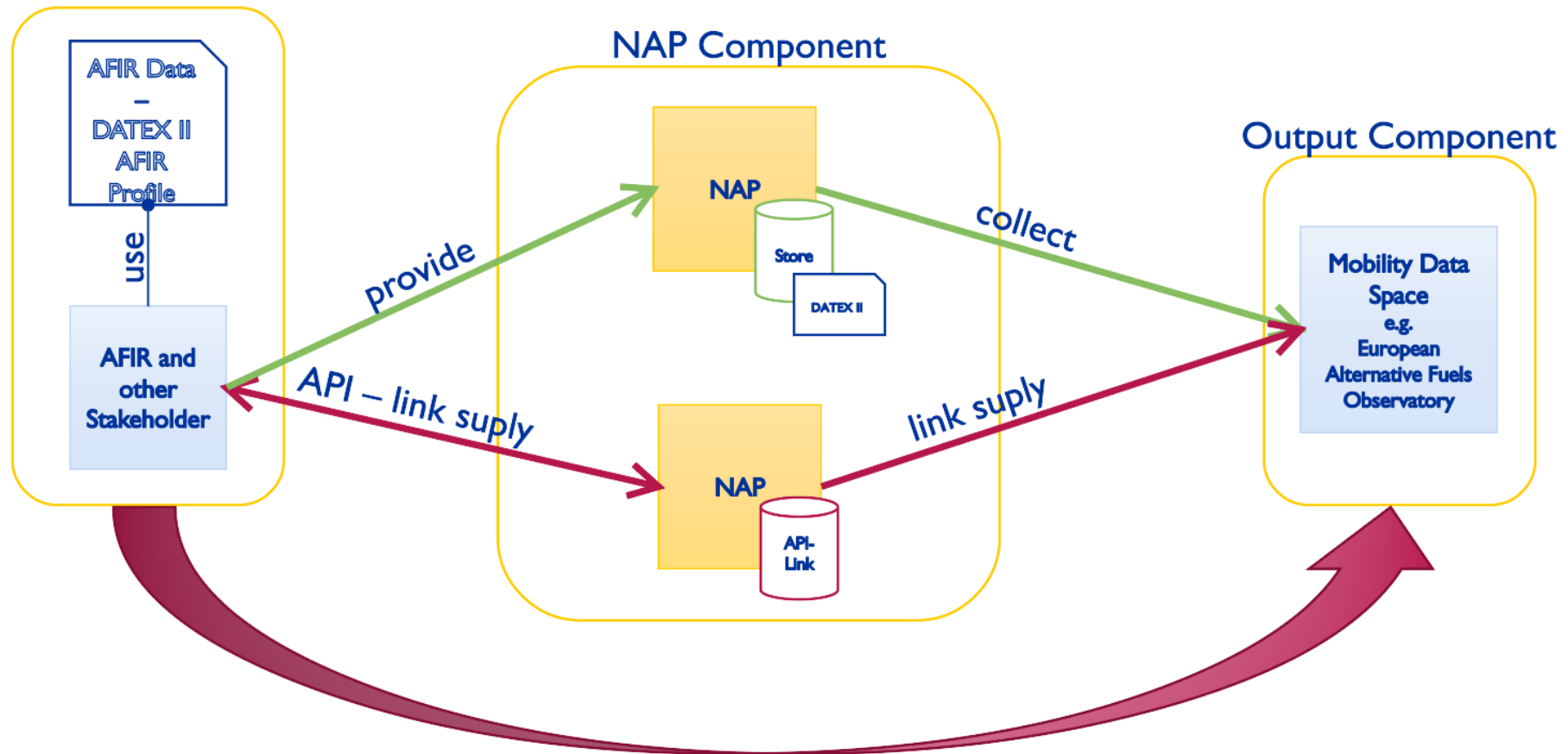
Implementation status – Internal survey (April 2023)

- A deep research regarding the availability of AF data on the NAPs was carried out by the PT team as part of the work related to the AF demonstrator (task 2.4)
- It pointed out that 13 MS (out of 30) have some sort of AF data
- However, only a few of those had their datasets clearly organized according to the CKAN, which allows them to integrate the Metadata demonstrator more easily
- The table below summarizes this information

Member State	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	GR	HU	IE	IT	LV	LT	LU	MT	NL	NO	PL	PT	RO	SK	SI	ES	SE	CH	UK	
Availability of Alternative Fuels data	Some data was found	Some data was found	No data was found	No data was found	No data was found	Some data was found	No data was found	No data was found	No data was found	Some data was found	Some data was found	Some data was found	Some data was found	No data was found	No data was found	No data was found	No data was found	Some data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	Some data was found	No data was found	Some data was found	Some data was found	Some data was found
"Ease" of obtaining dataset metadata through CKAN	No data was found	Some data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	Some data was found	Some data was found	Some data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	No data was found	Some data was found	No data was found	No data was found

-  No data was found
-  Some data was found

Conceptualization



Initial demonstrator Proof-of-concept would entail different use cases of data according to NAP typologies (Metadata Repository or Data Platform) or other stakeholders.

Availability of Alternative Fuels data

Challenges faced in making AF data available

- AF data availability depends on the provision by the CPOs
- MS mandated CPOs to provide AF data through their NAPs
- Different NAP Architectures and other issues prevent CPOs from adding such data
- For that reason, much of the data still lacks in several NAPs and MS (as observed in the status of implementation)

Possible solution: common EU access point for AF data

- EC has established that by 31 December 2024, MS shall ensure that AF data is made accessible on an open and non-discriminatory basis to all data users through their NAPs
- EC has established that – by 2027 – there shall be a common EU access point for AF data
- Technical details of such a platform are still to be defined. No mention of data standards in the DR 2023/1804

Next Steps

- Test different data extraction modules for different protocols related to Alternative Fuel Data
- Regardless of the existing data, the biggest current limitation for the proof of concept is centered on the NAP Architecture: data (or metadata to obtain extraction links) must be freely available to be extracted
- Technical development to start in 2024

Thanks

Do you have any questions?

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Milestone M2.6 (task 2.4.2): A live demonstration of sharing cross border metadata and real-life data

Author: Kenneth Sørensen (NO) and Christian von Huth (DK)

Meeting: Mobility Data Days, in Budapest

Date: 9. November 2023

Agenda

- Purpose of the demonstrator
- Use case
- Description of the demonstrator
- Video of the demonstration
- Results/ feedback
- Questions?

Purpose of the demonstrator

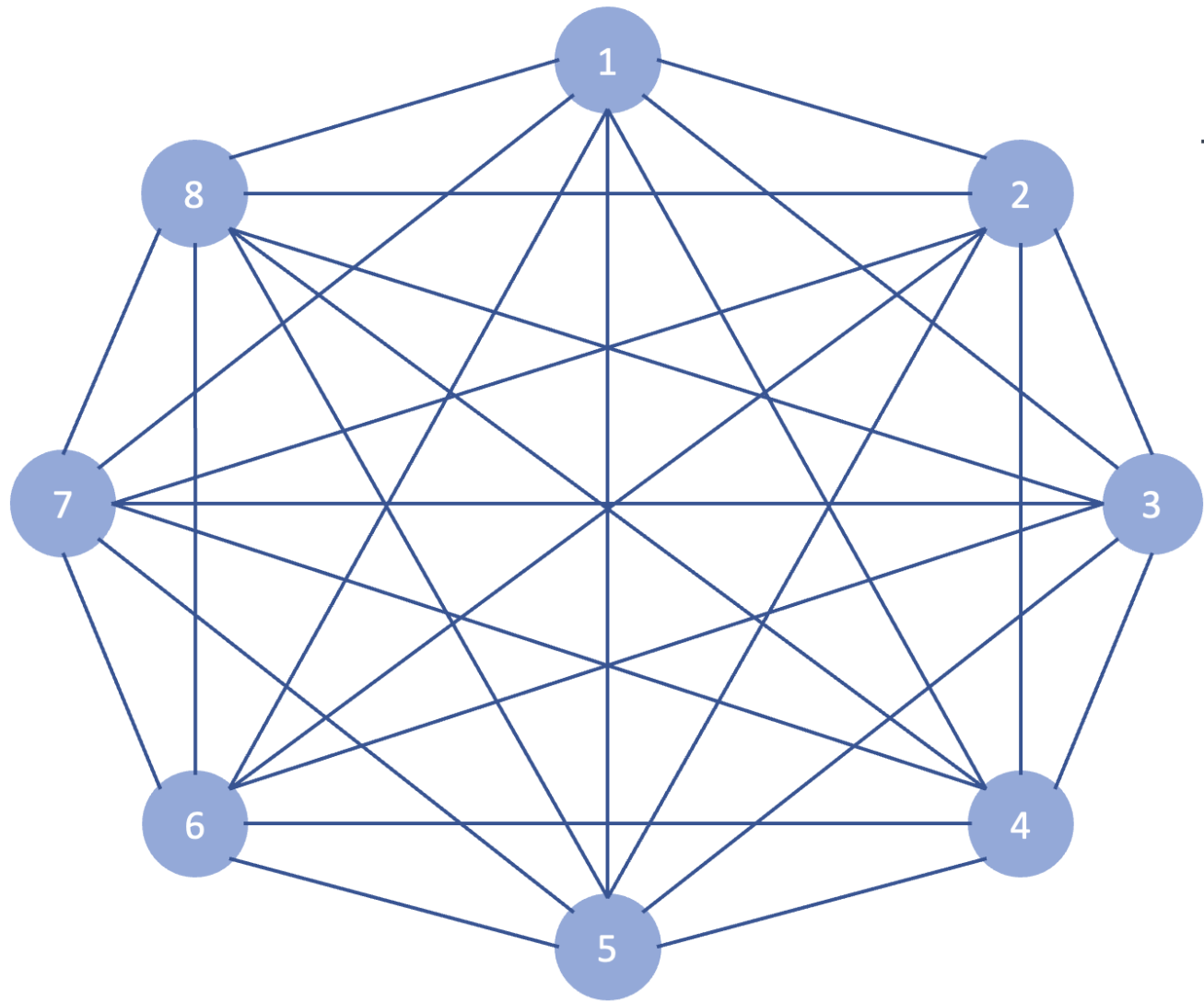
- Explore solutions to overcome the challenges of European-wide metadata and data sharing
- Promote collaborative metadata and data sharing practices among different nations and their NAPs
- Make relevant metadata and real-time data accessible to all interested parties through any NAP.

Purpose of the demonstrator

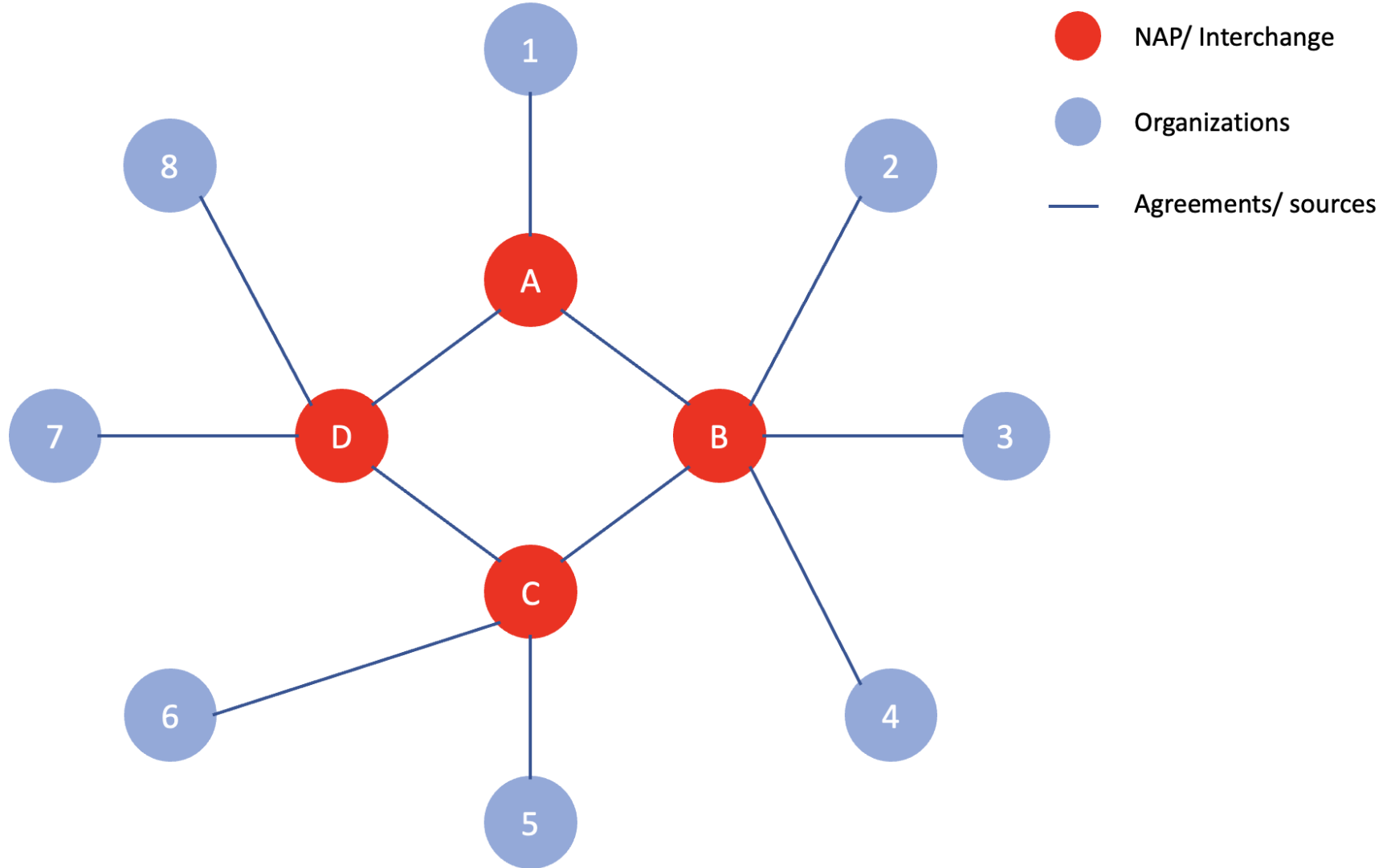
- To present a potential solution to the challenge at hand, by leveraging existing technology and facilitate sharing of metadata among NAPs in Sweden, Norway, and Denmark.
- Provide a technical solution to how this type of interoperability can be achieved, for example in the form of suggested minimum requirements for the reference architecture
- Provide input to the NLKF measuring the level of service

Use case

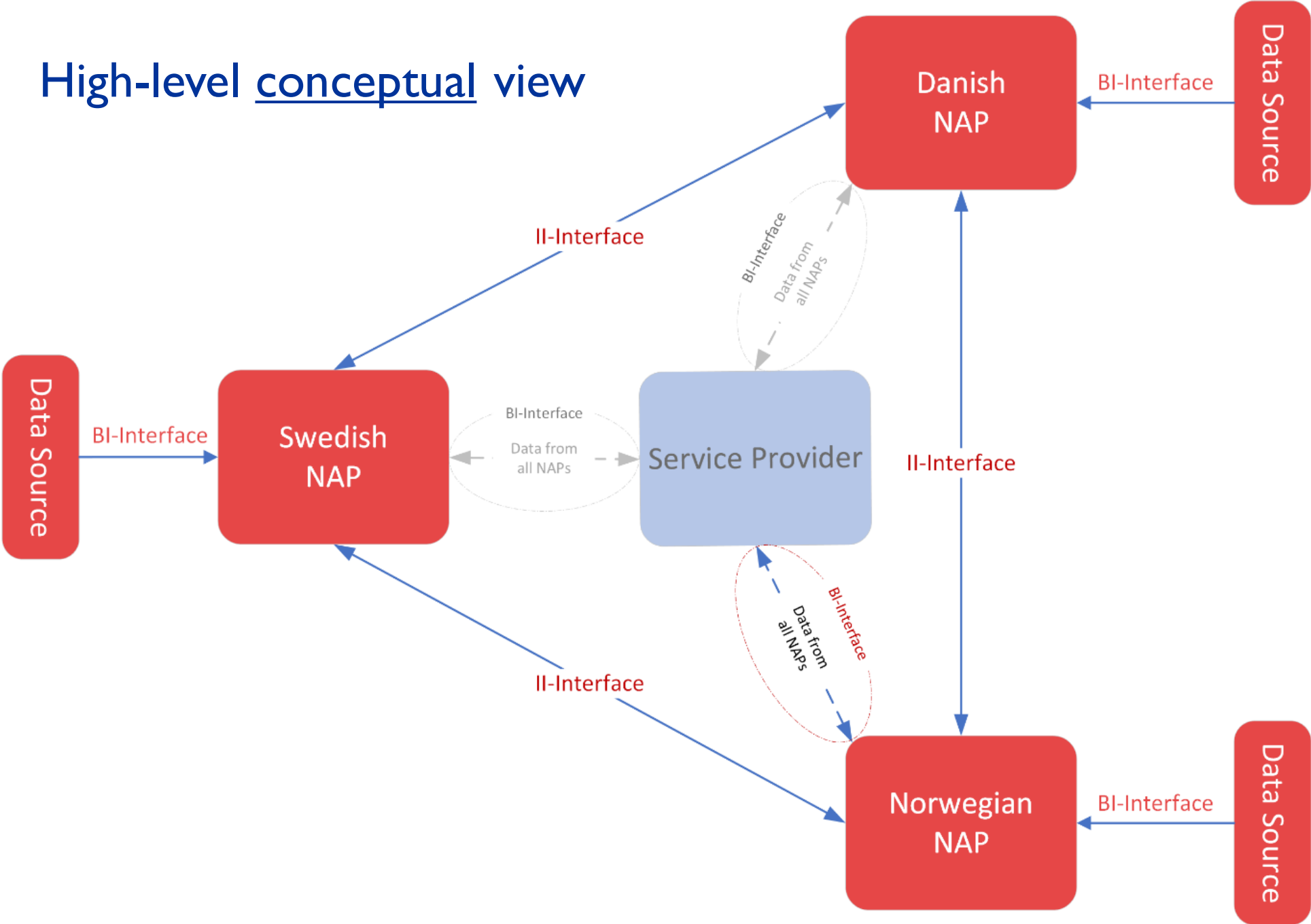
*«As a Service Provider, I wish to provide real time safety related traffic information, **cross border**, to my end users, so that they can receive relevant and updated information in a timely fashion and plan their journey accordingly»*



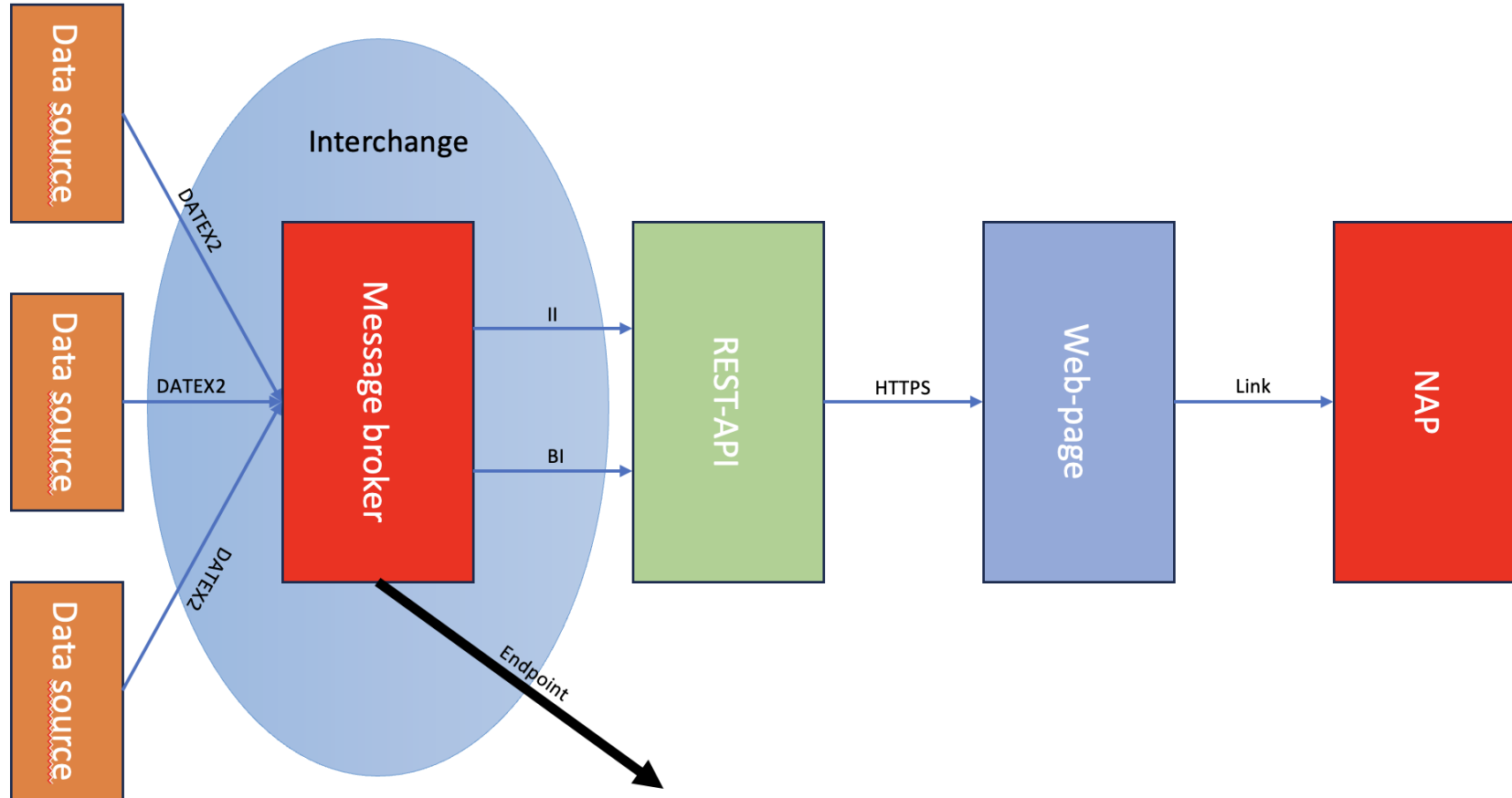
● Organizations
— Agreements/ sources



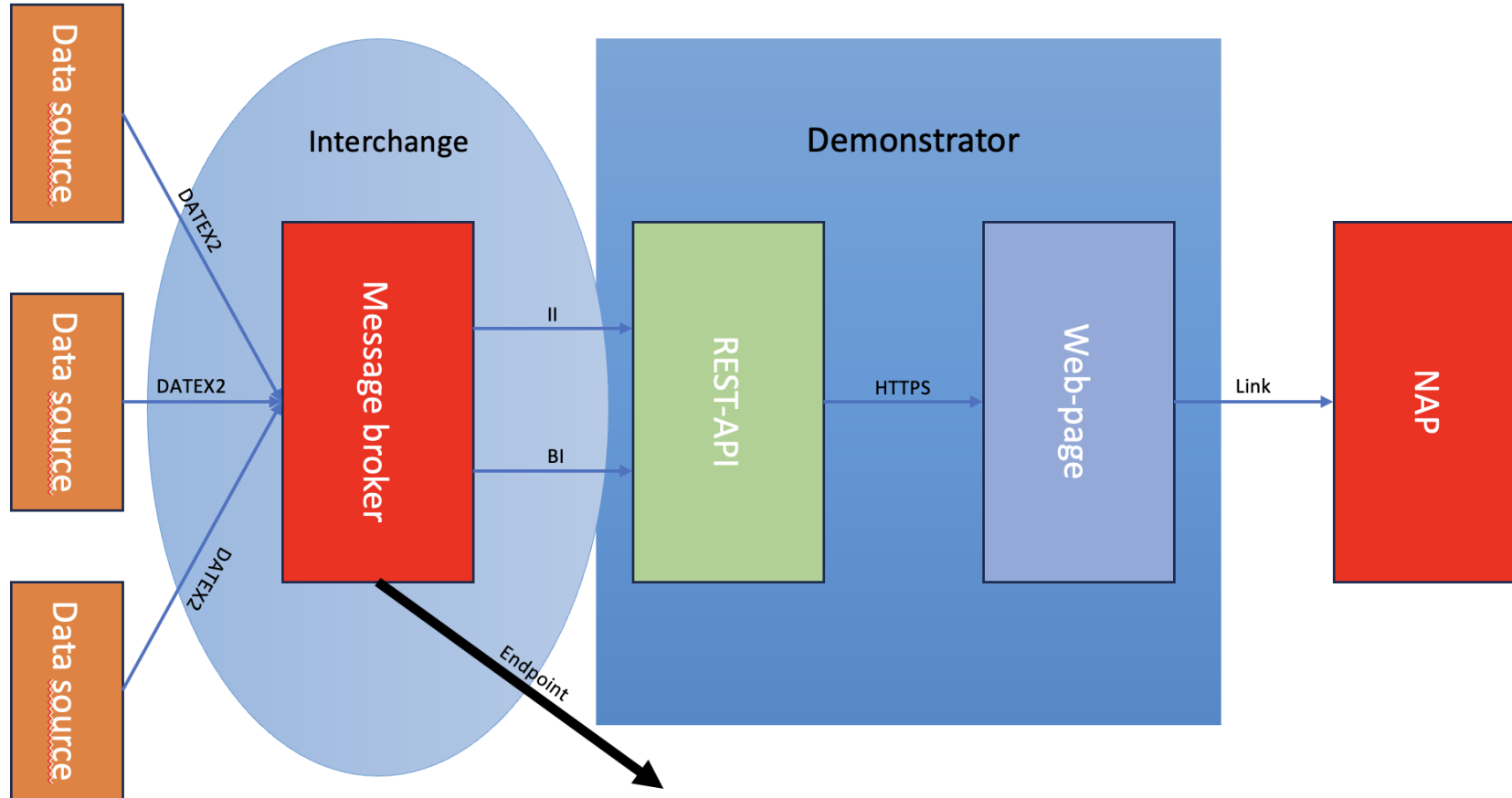
High-level conceptual view



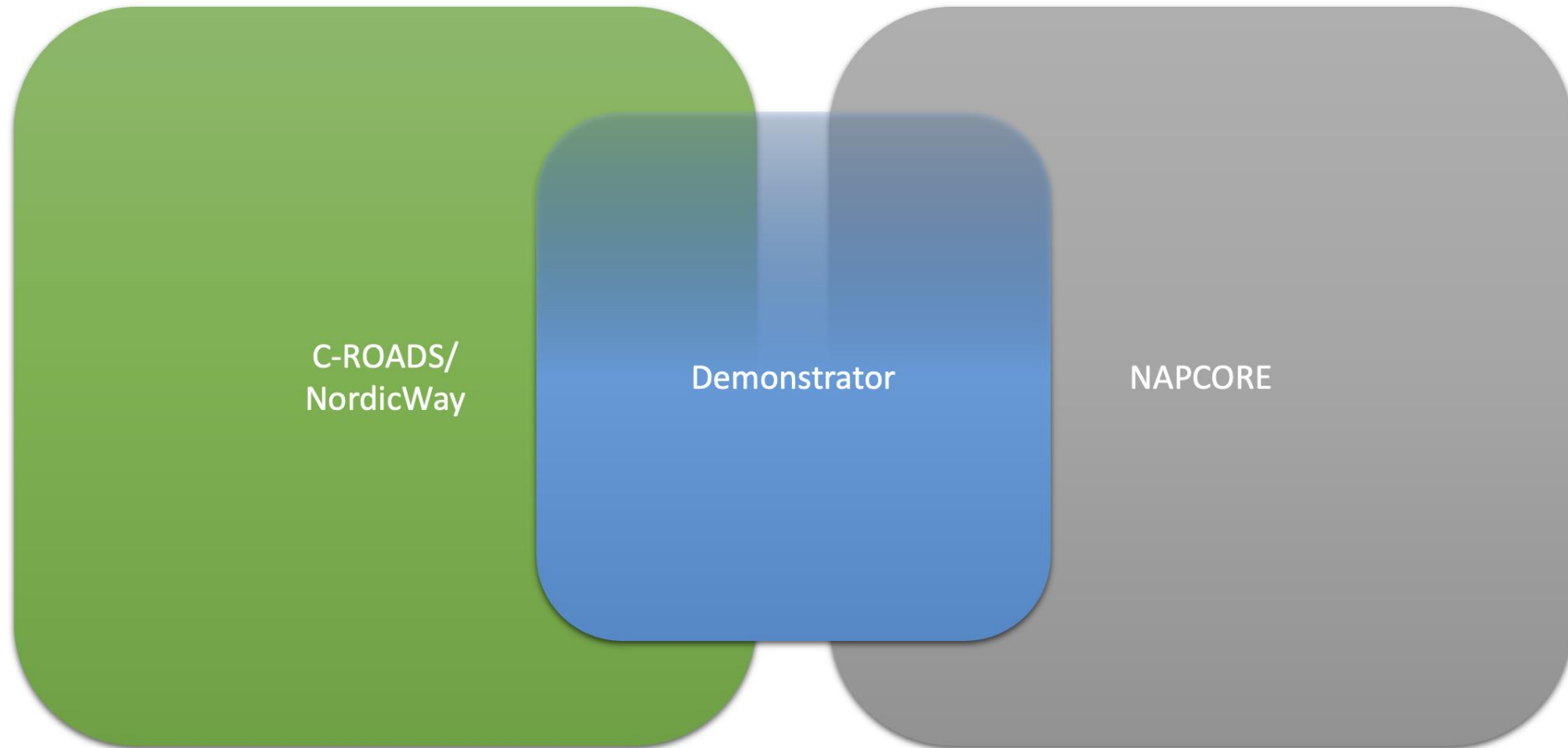
The background for the demo



The background for the demo



The background for the demo



Microsoft Teams

NAPCORE: BeMobile will be demonstrating - easy findable and ac...

2023-10-24 07:30 UTC

Recorded by

Christian Rantzow von
Huth

Organized by

Christian Rantzow von
Huth



The service providers response:

“So, we can see that it was very easy. We have one platform where can receive all traffic information from different countries. The integration for the different countries is actually identical, so when you integrate one country, you can very easily add additional countries.”, Jan Vossaert, Backend Developer, Be-Mobile.

“If all countries or a group of countries had set up such a system, then that would make our technical work a lot easier. That is certainly fair to say.”, Wannes De Smet, Offering Manager Traffic Information, Be-Mobile



Proposed solution (to achieve the improvements)

- Make use of the already existing European standards for metadata and data sharing developed in other European-founded projects (C-roads and NordicWay).
- Improve the metadata standard of the interchange to fit the "mobility_DCAT-AP".
- Suggest a new KPI to the LoS of NAPs regarding the implementation of data sharing solution.
- Levels 1 = Non, 2 = Light/lose integration or 3 = Tight intergration.



Interoperability Demonstrators & EAP

Work item 2.4.3: Cross-border Marketplace Demonstrator

Maryse Bücking (NL)

NAPCORE Mobility Data Days 2023

November 9th 2023

What is the purpose?

- Make planned roadworks data from Germany available to logistical service providers in the Netherlands through the DEFLog marketplace.
- To demonstrate a secure and efficient exchange of data between a Dutch data consumers and German data providers.
- To learn which issues we are facing when sharing data or monitoring agreements cross-border, especially regarding possible agreement breaches by the data provider or the data user.

Why this use case?

There are a number of benefits to enabling logistical service providers to access planned roadworks data for both the Netherlands and Germany. This would allow them to:

- Improve their route planning and avoid delays caused by roadworks.
- Reduce their fuel consumption and emissions.
- Provide better customer service by being able to communicate more accurately about expected delivery times.

Requirements

- The logistics sector uses OTM as a data format, this means that the roadworks data must be translated from DATEX.
- Monitor the use of the roadworks data and generate reports for the data owner.

Challenges

- Security (registration of the data providers and consumers, as well as NAPs).
- Specifically security cross-border and interchange of authentication between instances.
- Possible restrictions regarding sharing of data to service providers that exist in one country, but not in another.
- Processes of data consumption and authentication.
- *Dealing with cross-border agreements regarding signing authorities for NAPs or other registries.*

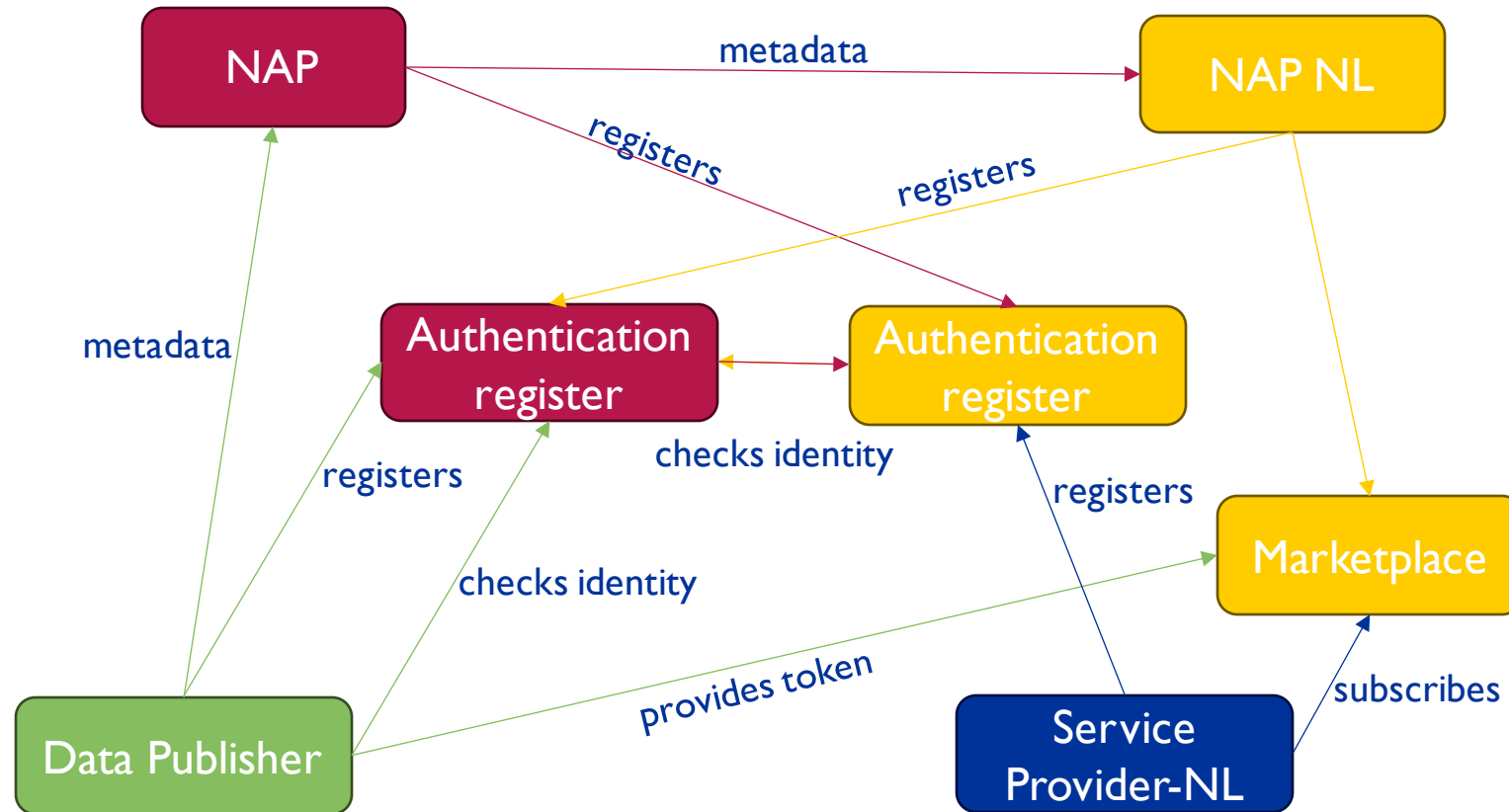
Secondary objectives

- To determine best practices regarding data sharing and monitoring of agreements.
- To determine best practices and issues regarding the recording of data sharing agreements between cross-border parties. Especially in relation to security and trust.
- To report and advise on the next steps, based on the findings.

Preferred approach

1. Establish a marketplace at NAP-NL (NTM).
2. Setup an Authentication register at NAP-NL (+ agreements + tokens).
3. Setup an exchange feed between NAP-NL & NAP-DE.
4. Harvest datasets-DE and apply regional filter (border areas).
5. Translate the DE-DATEX feed of planned roadworks to OTM and publish as a new feed.
6. Setup a monitoring system at the marketplace.
7. Setup a report functionality from the monitoring.
8. Setup an exchange feed for the monitoring system.
9. Setup a warning system in the monitoring system.
10. Provide reports to the publisher.
11. Provide warnings to the publisher.

Reference Architecture simplified

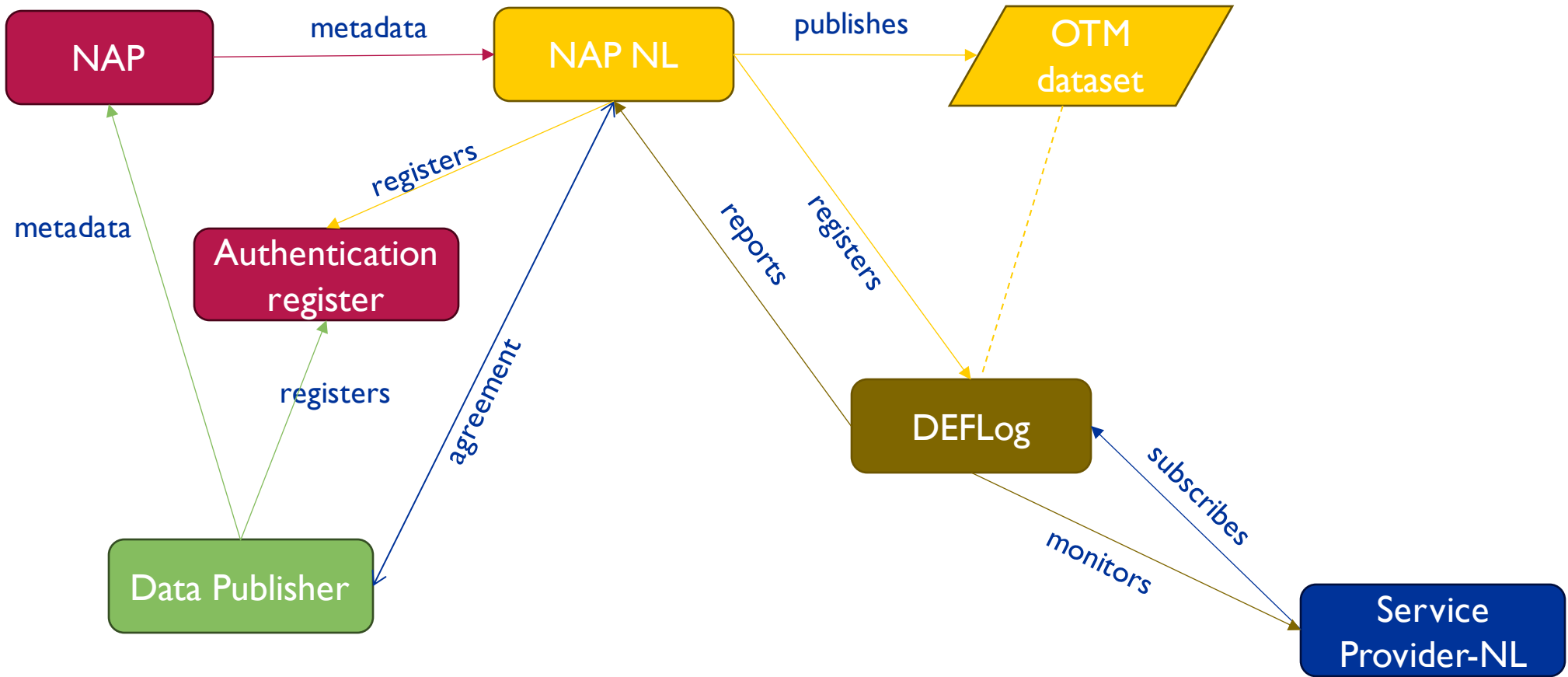


Alternative approach – NAP-NL as intermediary

1. Connect the intermediary to NAP-DE using a machine .
2. Harvest metadata from DE mobility datasets.
3. Apply to BAsT for brokerage of planned roadworks as the intermediary.
4. Translate DATEX feed of planned roadworks to OTM using existing NL-service.
5. Establish a connection between DEFLog and the intermediary.
6. Onboard this feed as a new instance in DEFLog.
7. Implement monitoring in the intermediary using specific tokens.
8. Create monitoring reports for the intermediary and BAsT.
9. Setup an exchange of monitoring reports for BAsT.

In this approach the intermediary becomes the owner of the OTM feed.

Alternative visual



Why DEFLog?

- It already exists.
- Logistics providers already use it.
- Once the German planned roadworks are available in DEFLog, it is easily implemented in the workflow of the logistics providers.

data.deflog.nl/marketplace

DL Marketplace Documentation

Ready to start sharing and accessing data services?

Create an account Log in

Welcome to DEFLog

Filters

13 data services

Sort by Newest first



Beta

NDW

OTM schoolzones

Schoolzones rondom (een deel van de Nederlandse) scholen. Let op: Deze data is afkomstig uit een pilot!

Open Trip Model (OTM) OTM




Beta

Provincie Noord-Brabant

OTM Transport Zones API

De OTM Transport Zones API geeft data uit over de voor vrachtverkeer te vermijden zones in de provincie Noord-Brabant.

Open Trip Model (OTM) OTM Navigatie Wegtransport Publiek +3




NDW

Roadworks in OTM

NDW Roadworks feed in OTM format


Open Trip Model (OTM) OTM Wegtransport Wegwerkzaamheden



Squid

Squid Geocoder

Squid Geocoder allows subscribers to convert zipcodes or addresses into GPS coordinates.



Matrixian Group B.V.

Vehicle Restrictions

This data is sourced from the Data voor Logistiek-platform (https://platform.datavoorlogistiek.nl), with data contributions from road managers in the Netherlands This set contains information about Vehicle Restrictions. Vehicle Restrictions...



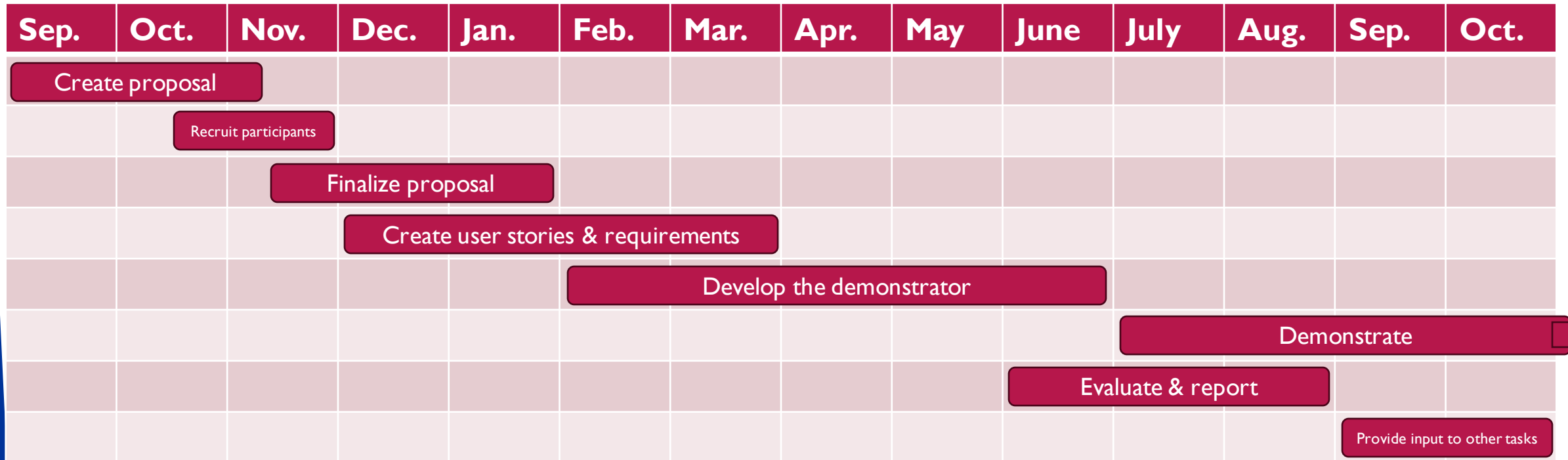
Matrixian Group B.V.

Zero Emissions Zones

This data is sourced from the Data voor Logistiek-platform (https://platform.datavoorlogistiek.nl), with data contributions from road managers in the Netherlands From 2025 onwards, many Dutch municipalities will introduce a Zero Emissio...



Draft timeline





Paper on data discoverability and accessibility

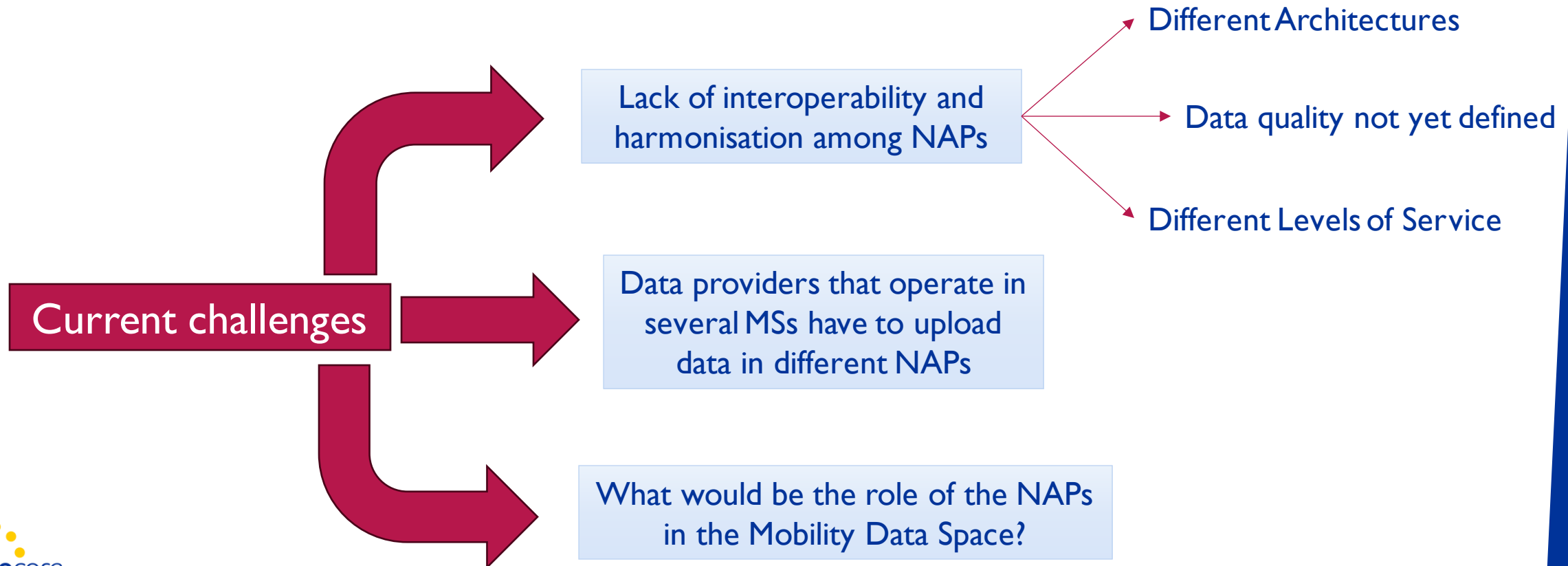
Work item 2.4.5. European Access Point
NAPCORE Mobility Data Days

9 November 2023

Lígia Conceição & João Montenegro (Armis, PT)

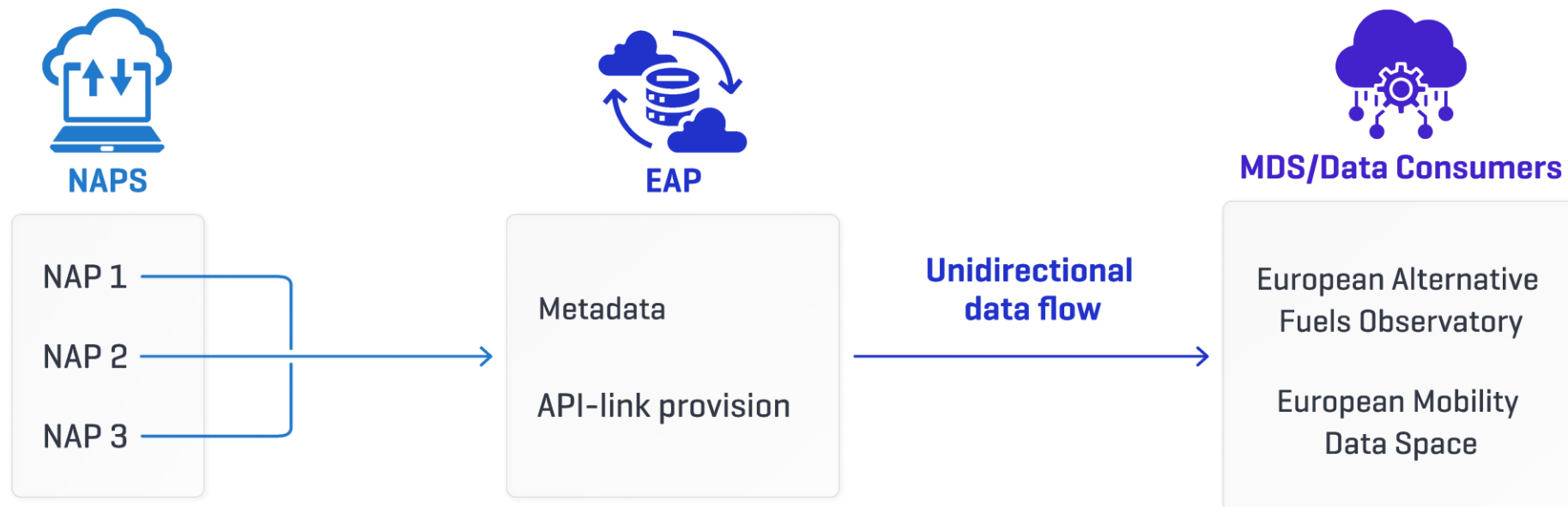
Introduction - Context

- European Access Point (EAP) - Where did the discussion come from?



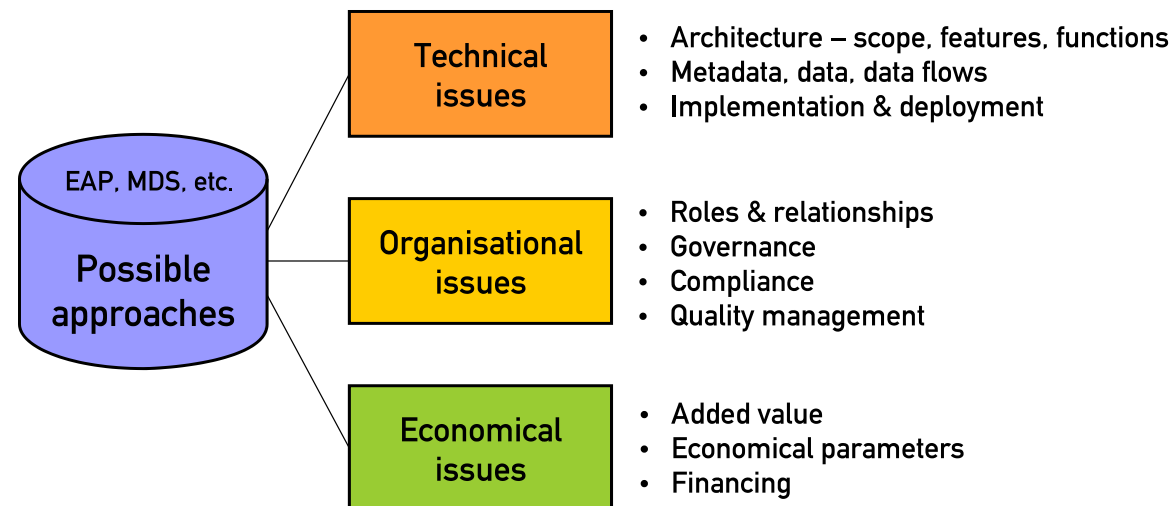
Introduction – benefits of an EAP

- The EAP was seen as a promising idea since it could:
 - Enhance data discoverability
 - Allow for competitiveness growth and advanced mobility services
 - Assist in overcoming interoperability challenges



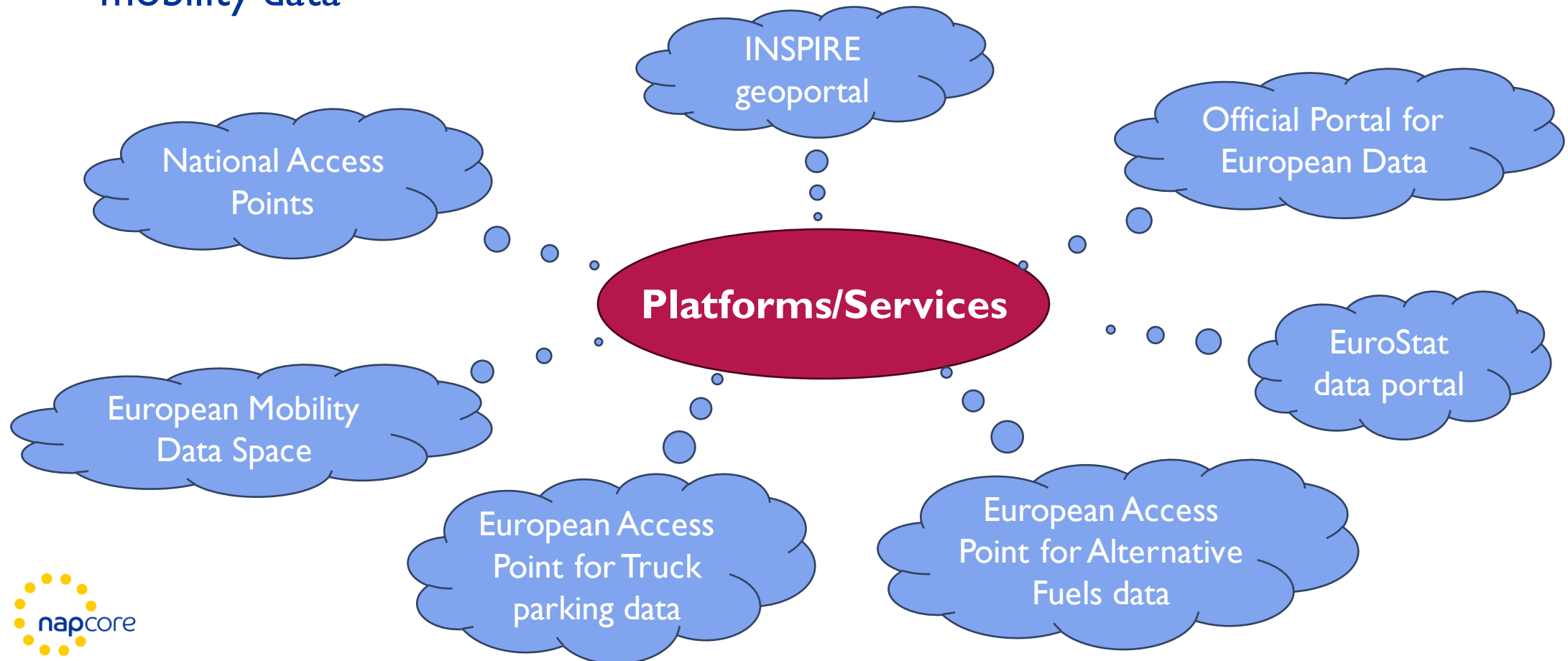
Introduction – The paper’s scope

- NAPCORE WI 2.4.5 – Development of an overall concept of a “EAP”
- Discussion on the main aims, associated responsibilities and EAP types
- EAP for alternative fuels – **set to 2027**
- Change of focus - WG2 decided to elaborate on a paper exploring different possibilities (based on the EAP types) of using NAP data to overcome the challenges faced




Background

- Research on existing/previous/planned platforms (or services) that allow sharing mobility data



Methods

- 
- Recording of the current state of practice (background)
 - Definition of possibilities (approaches)
 - Pros & cons analysis
 - 1- Selection of parameters
 - 2- Assessment procedure

Methods – Pros & cons analysis

- Selection of parameters

Category	Parameter	Code
Organisational/ Administrative	Administrative/organisational complexity	OPI
	EU policy acceleration	OP2
	Clarity of roles and responsibilities	OP3
Technical	Data accessibility	TP1
	Data interoperability	TP2
	Data discoverability	TP3
	Data quality	TP4
	Data security	TP5
	Data consolidation	TP6
	Data comprehension	TP7
Economical	Required capital expenditure (CapEx)	EPI
	Required operational and maintenance expenditure (OpEx)	EP2

Methods – Pros & cons analysis

- Assessment procedure:
 - Qualitative analysis
 - Assignment of scores (0-5) for each “type”, for each parameter
 - **The goal is not to provide an overall ranking between the approaches selected**
 - The intention is to support policymakers when deciding upon the approach to follow, which will depend on the importance/weight given to a certain benefit/aspect (perhaps through a **spider diagram**)

Platform/Service	Parameters' scoring											
	OP1	OP2	OP3	TP1	TP2	TP3	TP4	TP5	TP6	TP7	EP1	EP2
Platform/service 1												
Platform/service 2												
Platform/service 3												
Platform/service 4												
Platform/service 5												

Results and next steps

- Possibilities defined and described:
 1. A list of links to the NAPs
 2. Metadata portal
 3. Data warehouse
 4. Open data space
 5. EU-Mobility Service provider
- First results of the pros & cons analysis to be achieved by late November/early December
- Paper submission to be done by the end of this year

Thanks

Do you have any questions?

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