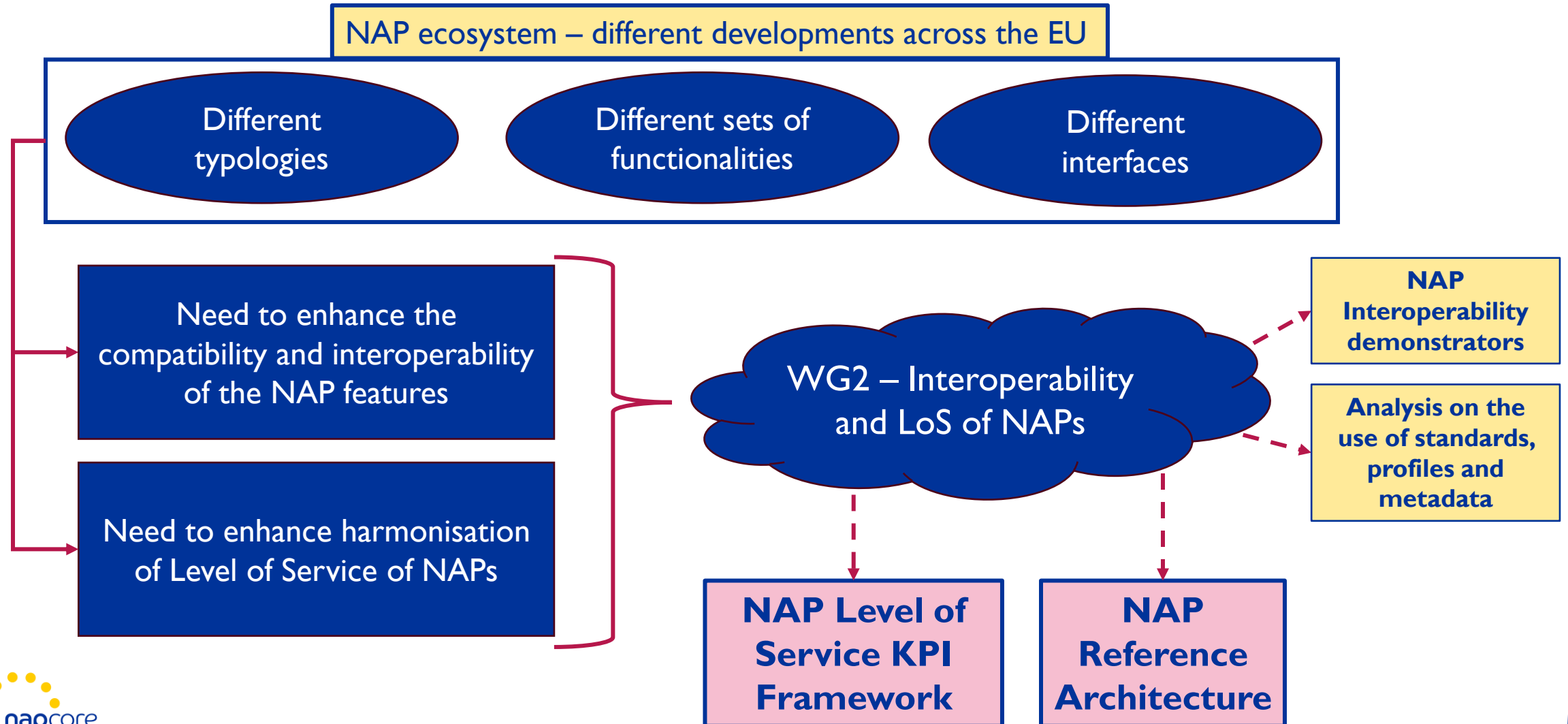




NAP's LoS and Reference Architecture

Mobility Data Days
Turin, 7th November 2024

Context



Agenda

1

Overview of WG2 outputs – insights by task leaders

2

Round table discussion with NAP operators



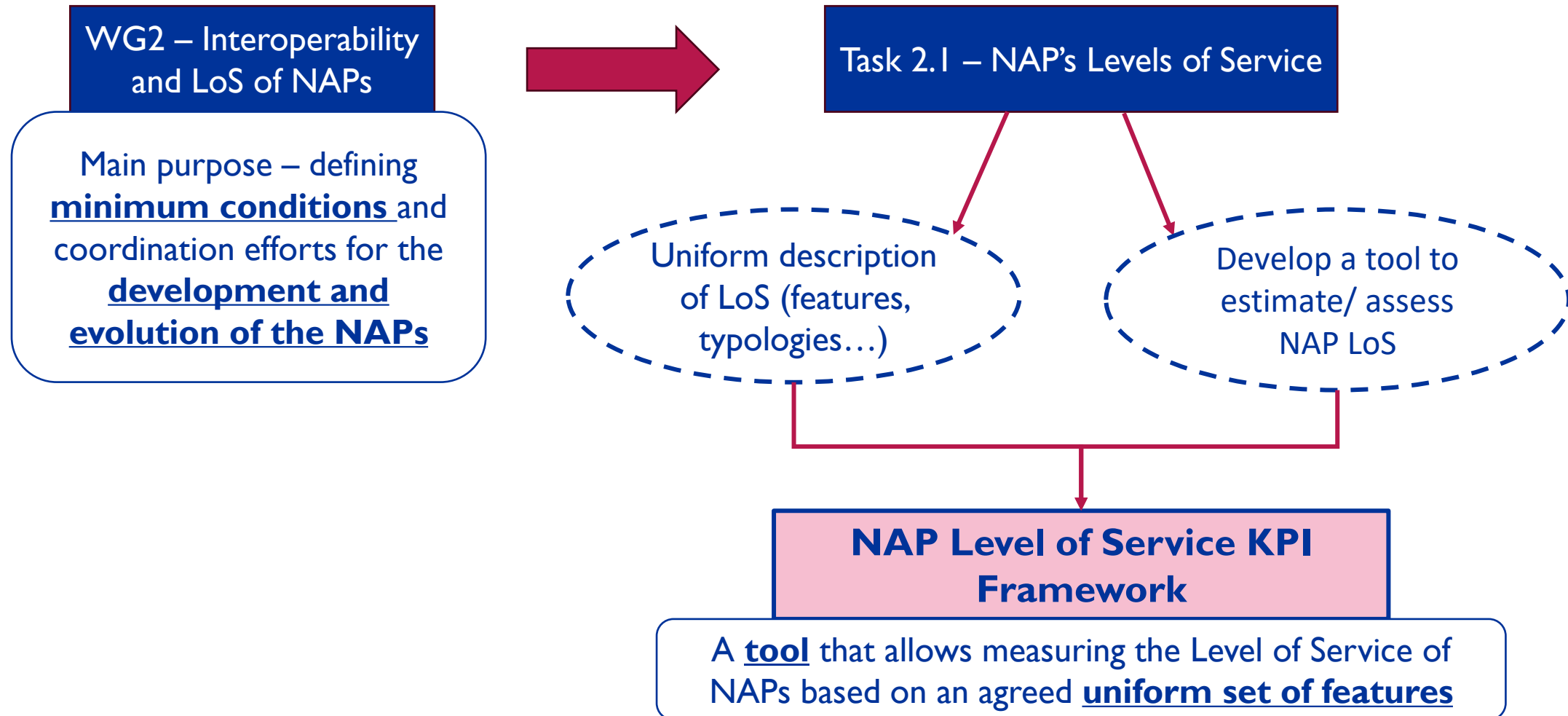
NAP Level of Service KPI Framework

Mobility Data Days

Turin, 7th November 2024

João Montenegro, ARMIS – PT | Nuno Rodrigues, MAPTM – NL

Introduction to the Framework



Development of the Framework

EU EIP A2: Working Group NAP, 2020

NAP Common Feature List

	Required	Nice to have	...	...
Access				
1. The NAP is available over the internet	•			
2. NAP can be navigated easily and is design compliant with web design standards / accessibility	•			
3. NAP is provided in the national language and commonly used language(s) of the Member State	•			
4. NAP follows EU data protection and industry data security standards	•			
5. NAP requires data publishers to register to add their data / metadata	•			
6. NAP requires data consumers to register for full access		•		
Communication				
7. NAP provides help for data publishers to register, add data / metadata	•			
8. NAP provides Terms & Conditions	•			
9. NAP is promoted	•			
10. NAP provides means for data consumers to contact NAP operator and / or data provider for assistance	•			
Finding datasets				
11. NAP provides appropriate discovery services	•			
12. Datasets can be searched using a metadata catalogue	•			
13. The NAP provides machine readable metadata		•		
14. The NAP provides a map-based search		•		
Update and maintenance				
15. The NAP service is maintained	•			
16. The NAP content and metadata is maintained and makes best effort is made to keep content up-to-date	•			
17. NAP monitoring and evaluation is undertaken		•		
Dataset information				
18. NAP provides clear descriptions of each dataset	•			
19. NAP provides dataset documentation (or links) where required	•			
20. NAP datasets classified according to standard / controlled vocabularies		•		
Extra category				

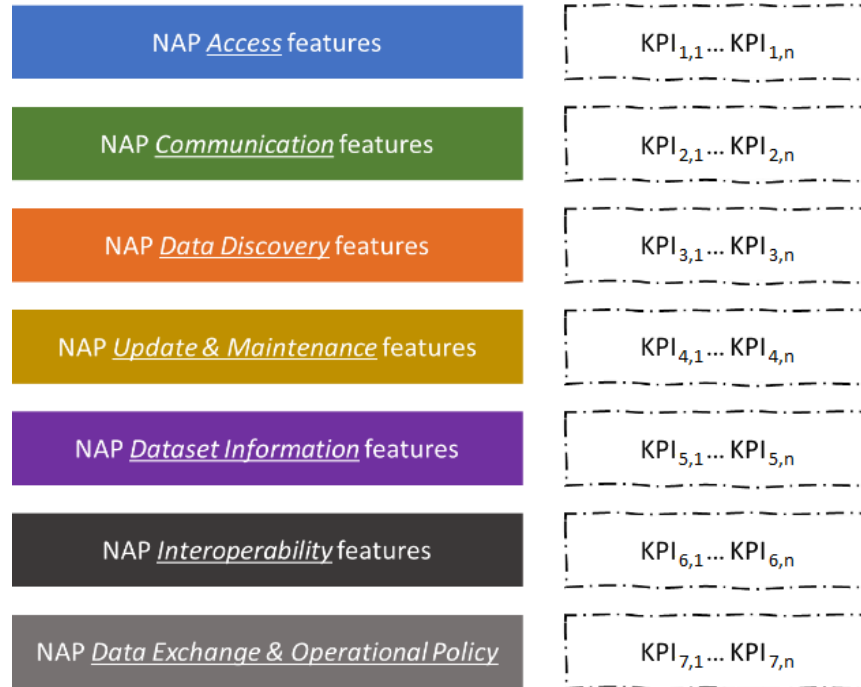
NAPCORE: Working Group 2, 2022

Category	Common Feature List
Access	1.1 On-line availability
	1.2 Compatibility with web browsers
	1.3 Compatibility with operating systems / platforms
	1.4 Responsiveness
	1.5 Web performance – Simplicity/ usability
	1.6 Web performance – Visual hierarchy/ navigability
	1.7 Web performance – Consistency
	1.8 Support of commonly used languages
	1.9 Security - Technical
	1.10 Security- providers verification
	1.11 Personal data protection
	1.12 Procedure for publication of data on the NAP
	1.13 Metadata access restrictions
	1.14 Data security and access restrictions for uploading
	1.15 Data security and access restrictions for downloading
	1.16 Indication of data modification
	1.17 Data transfer optimization
	1.18 API usage for data transfer
	1.19 Web performance – latency
	1.20 Data visualization
Communication	2.1 Provision of support to users to register and add data/metadata
	2.2 Promotion of NAP based on number of related projects
	2.3 Number of different channels on the NAP is regularly promoted (conferences, webinars, social network, homepage, printed media, flyers, etc...)
	2.4 Promotion of NAP based on number of related publications
	2.5 Provision of contact means to data consumers
	2.6 Mass notifications
Data discovery	3.1 Search functionalities
	3.2 Display of search results
	3.3 Provision of machine-readable metadata
Update and maintenance	4.1 NAP IT services
	4.2 NAP content and metadata
	4.3 NAP monitoring and evaluation
Dataset information	5.1 Documentation & description of datasets
	5.2 Classification of datasets based on standard/ controlled vocabularies
Interoperability	6.1 Adoption of Coordinated Metadata Catalogue
	6.2 Support of harvesting functionalities
Data Exchange and Operational Policy	7.1 Provision of Terms and Conditions for data reuse
	7.2 Data licenses described with harmonized pre-defined terms
	7.3 Provision of operational procedure information
	7.4 Provision of dataset indicators related to declaration of compliance
	7.5 Facilitation of compliance assessment procedure
	7.6 Association of published datasets with DRs supplementing the ITS Directive
	7.7 Established quality indicators for datasets

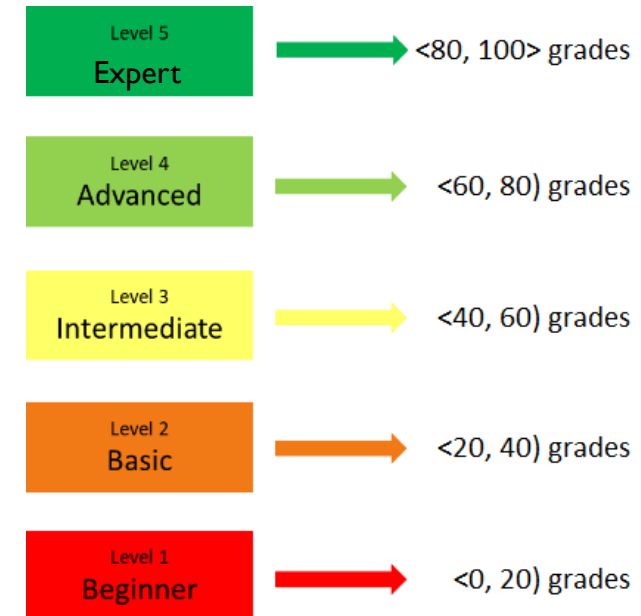
Extended list of features divided into 7 categories

Development of the Framework

- Definition of KPIs for each feature
- Weighting system – depending on NAP type
- Grade of Achievement & Maturity level approach



KPI	Index i,j	Data platform Weight Wi,j	Metadata directory Weight Wi,j
Search functionalities	3.1	0.89	0.89
Search results	3.2	0.86	0.89
Machine-readable metadata	3.3	0.61	0.64
IT services	4.1	0.57	0.43
Content and metadata	4.2	0.71	0.64
Monitoring and evaluation	4.3	0.54	0.43
Documentation & description of datasets	5.1	0.68	0.75
Classification of datasets	5.2	0.75	0.83
Metadata Catalogue	6.1	0.79	0.82

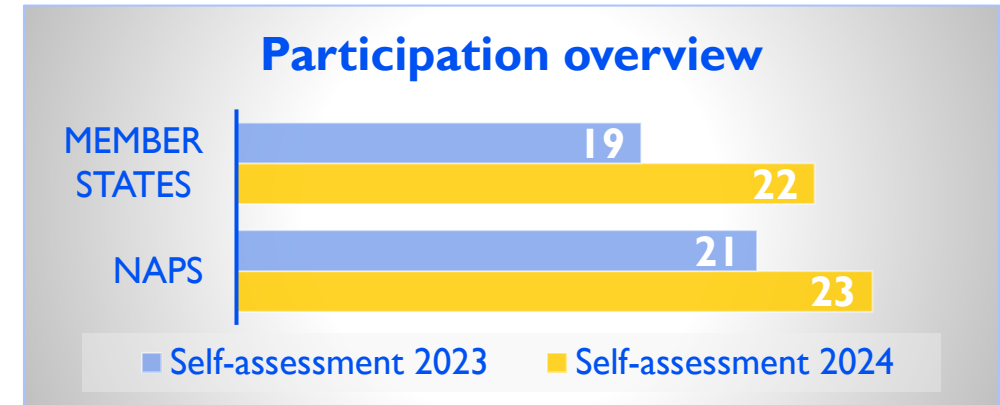


NAP LoS Self-assessment Workshops

- Practical examples of using the framework
- Increasing number of participants



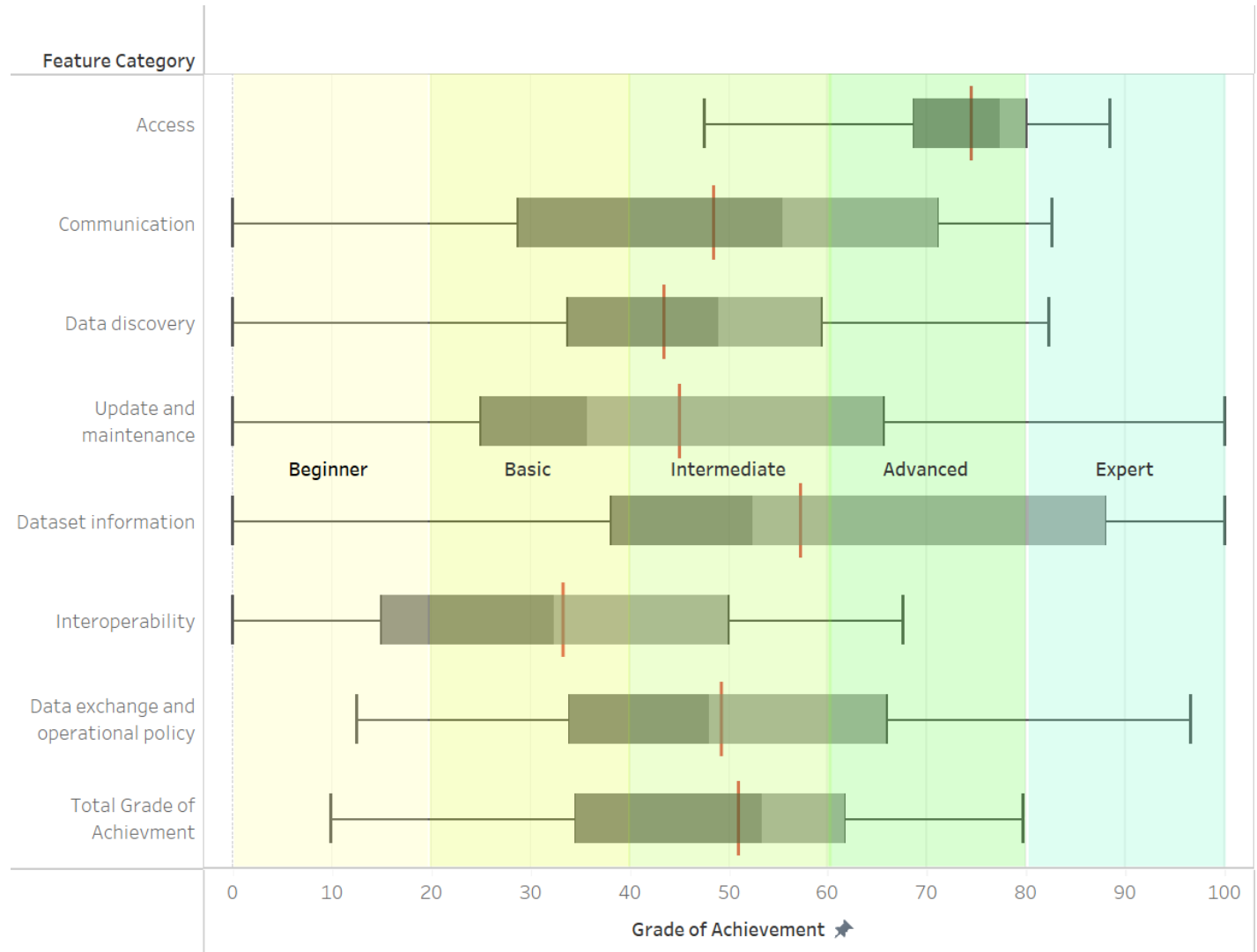
Utrecht, NL, 2024



Porto, PT, 2023

NAP LoS Self-assessment Workshops

- Overview of 2024 results
- Only aggregated data
- Individual results are sent directly to NAP operators



In Progress & Planned Activities

- Updates/revision of the NAP LoS KPI Framework (Ongoing!)
 - Allows including/excluding KPIs, reviewing description & values...
 - On a yearly basis
 - Using inputs from
 - Last Self-assessment Workshop
 - NAP Reference Architecture
 - Market insights
 - Ongoing developments around the mobility data ecosystem (legislation, EDMS, etc.)
 - Others...
- 3rd LoS Self-assessment WS – planned for early 2025

Thanks

Do you have any questions?

Joao.montenegro@armis.pt

Nuno.Rodrigues@maptm.nl





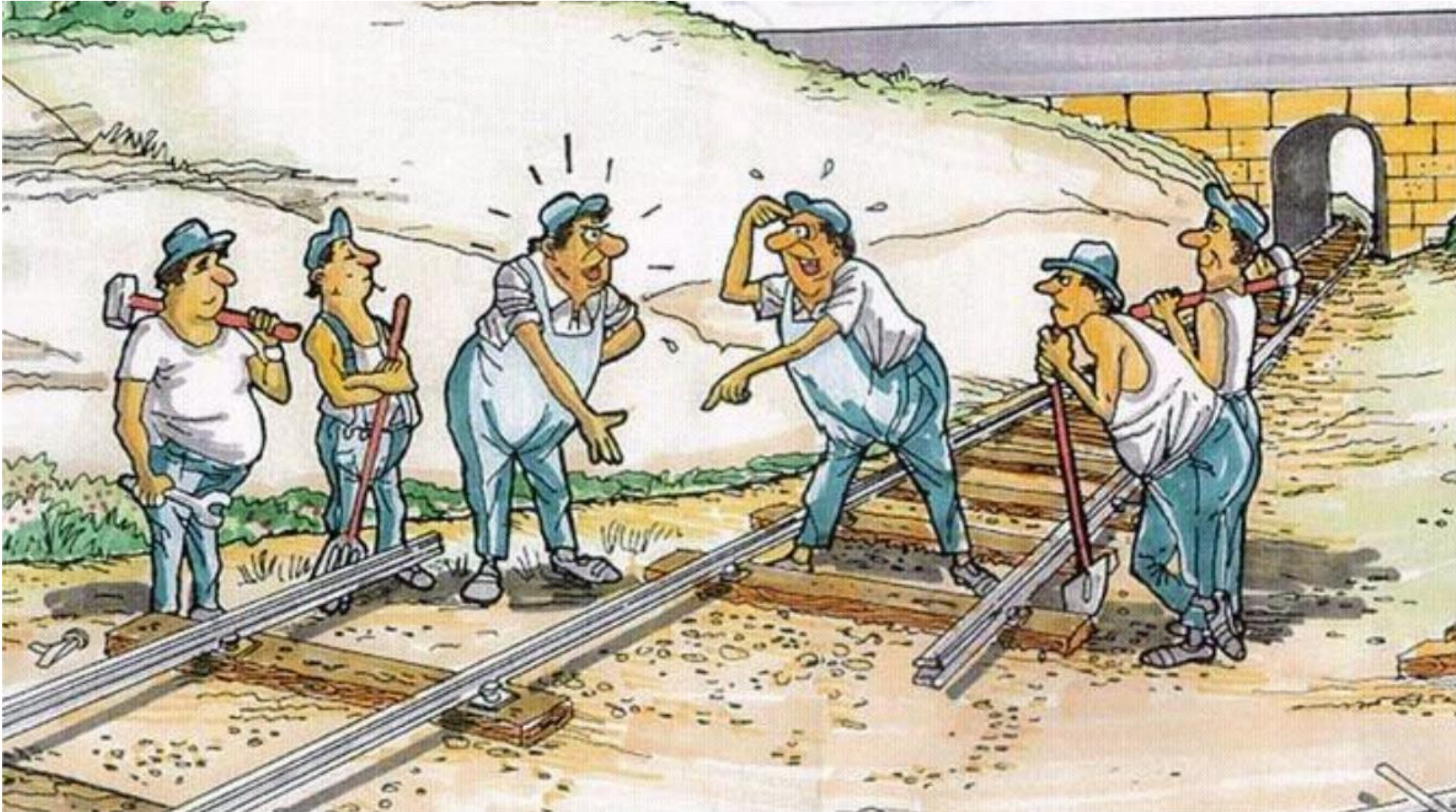
NAP Reference Architecture (NRA)

Relevance, Overview and Linkage to NLKF

Agenda

- Relevance and Overview
 - Definition, Importance, Blueprint
- Key components
 - Revisiting Views (high level),
- Ongoing Developments
 - The NLKF integration and new features

Why is the Architecture relevant



Source: <http://pixgood.com/teamwork-funny-cartoon.html>

What is the "Reference" Architecture

- The Reference Architecture is a blueprint for:
 - Motivational background
 - Functionalities and connections
 - Roles and responsibilities
 - Communication and interfaces
 - Processes and recommendations
- It describes WHY, WHAT, WHO and HOW the system should be organised and implemented

We develop Minimum
NAP Reference
Architecture for:

- metadata directory
- data platform

Vision of NAP interoperability by creating NAP reference architecture (NRA)

The NAP Reference Architecture defines the minimum necessary functionalities, processes, and interfaces to enable a harmonized exchange of information (metadata and data) for EU-wide reuse, creating the basis for an EU-wide mobility data space.

How is NAP Reference Architecture used?

- Creating Interoperable NAP from Scratch
 - Adhering to technical and organizational elements to enable interoperability of NAPs
- Making Existing NAP Interoperable
 - Adapting existing NAPs according to the NRA by critical functionality
- Browsing and Comparing NAPs to the NLKF
 - Comparing complex parts of implemented NAPs to the minimum level of service indicated in NLKF

NAP reference Architecture based on FRAME

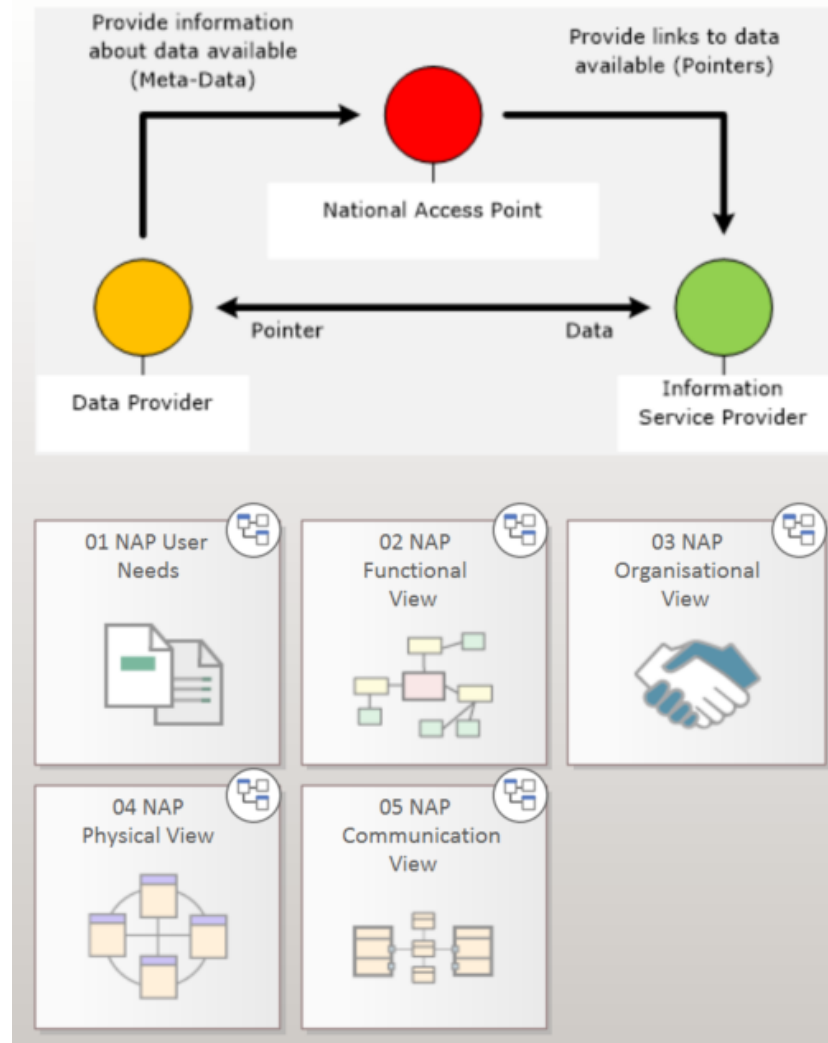
Reference Architecture

Detailed, with other views,
technology agnostic, generic.



Architecture uses **VIEWS** to illustrate a certain aspect of a system

- NAP Motivation Layer
- NAP User Needs
- NAP Functional View
- NAP Organisational View
- NAP Physical View
- NAP Communications View



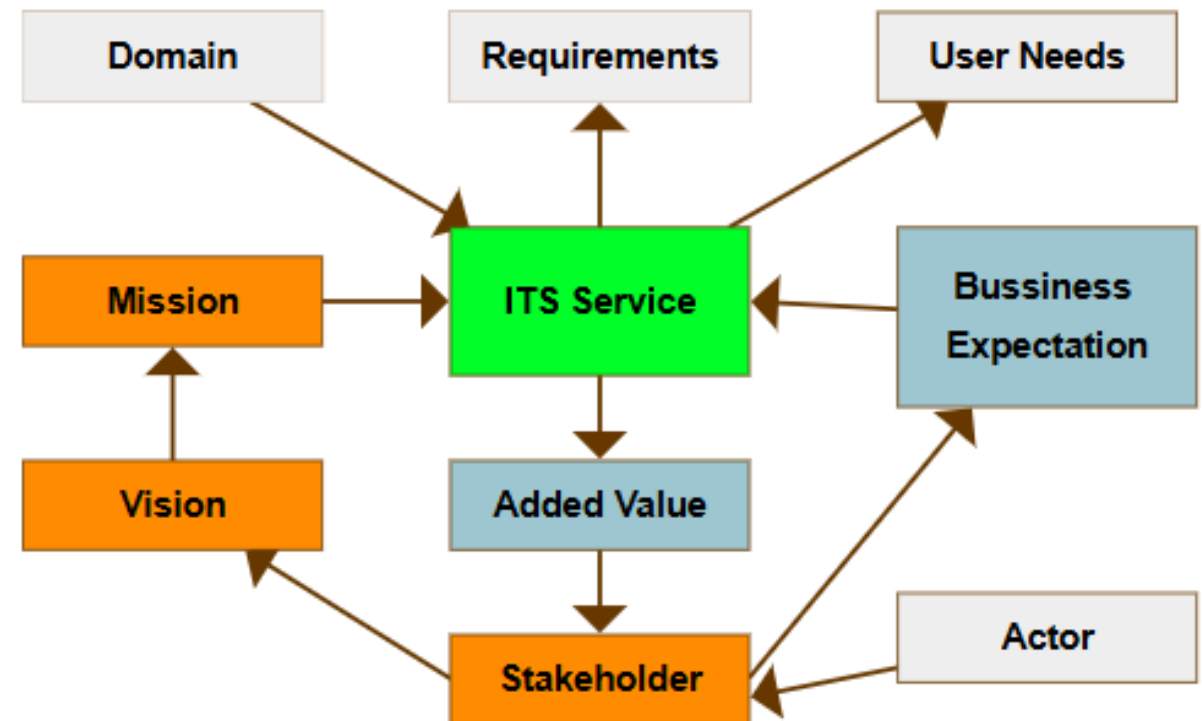
The architecture is developed within the Enterprise Architect

Each view contains:

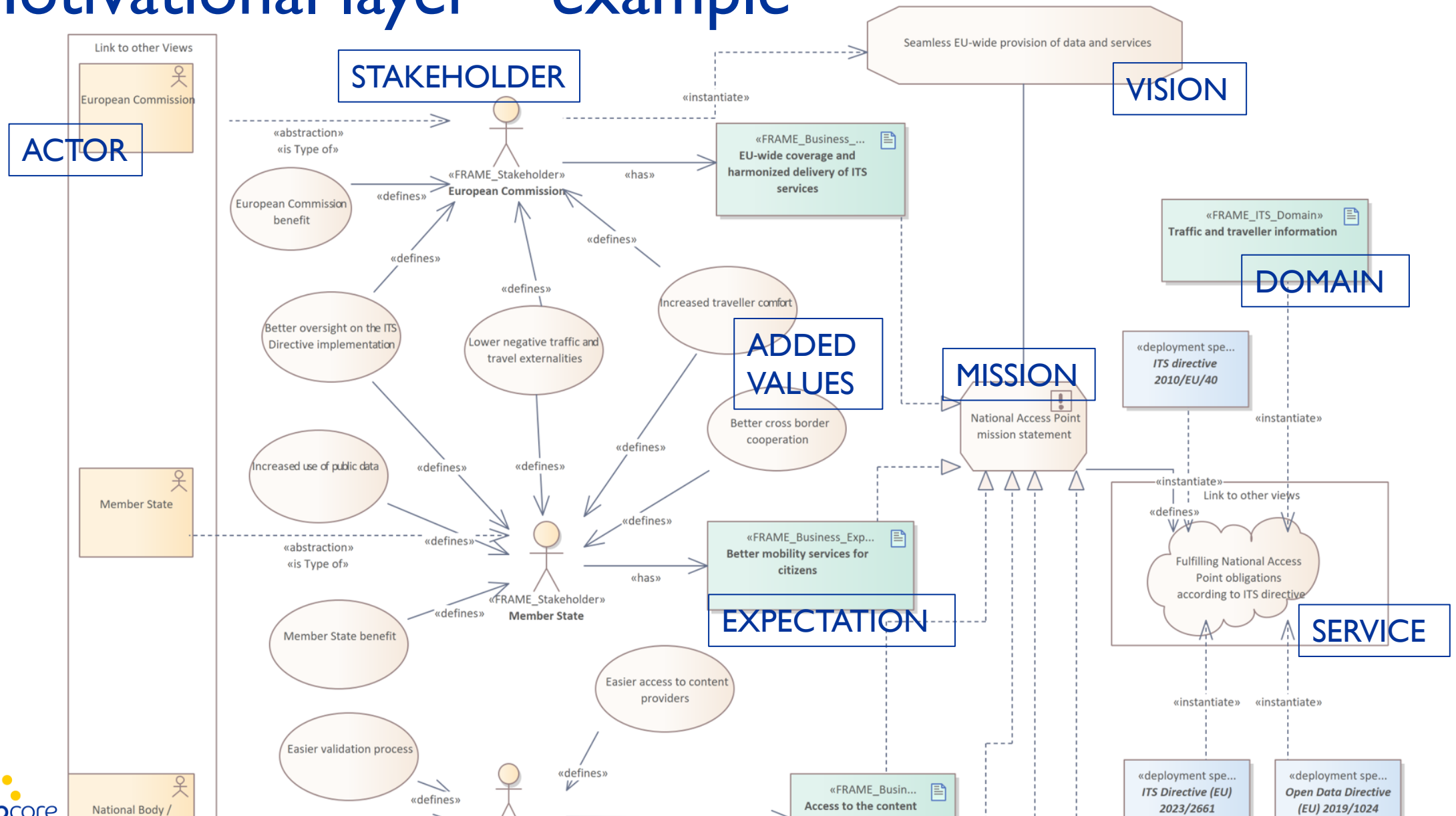
- **schema of a system** and **description** of each object and their relationships
- and also, the relationship with objects used in other views.

Motivational Layer

- Models the motivations, reasons, and expectations for the NAP.
It includes:
 - ITS Service** and its
 - Added Value** to the
 - Stakeholders** with their
 - Vision**
 - Mission** and
 - Expectations.**
 - Domain** and **User Needs**



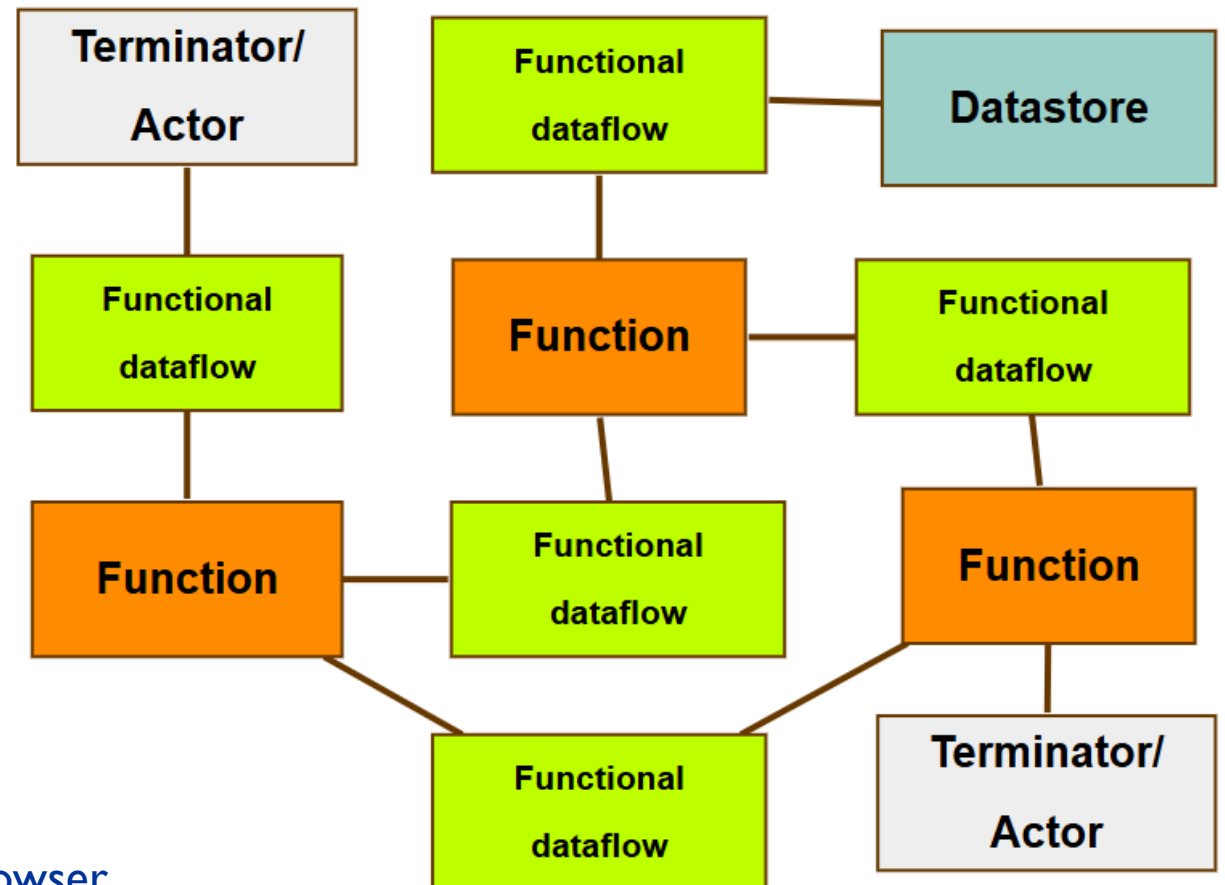
Motivational layer – example



Functional View

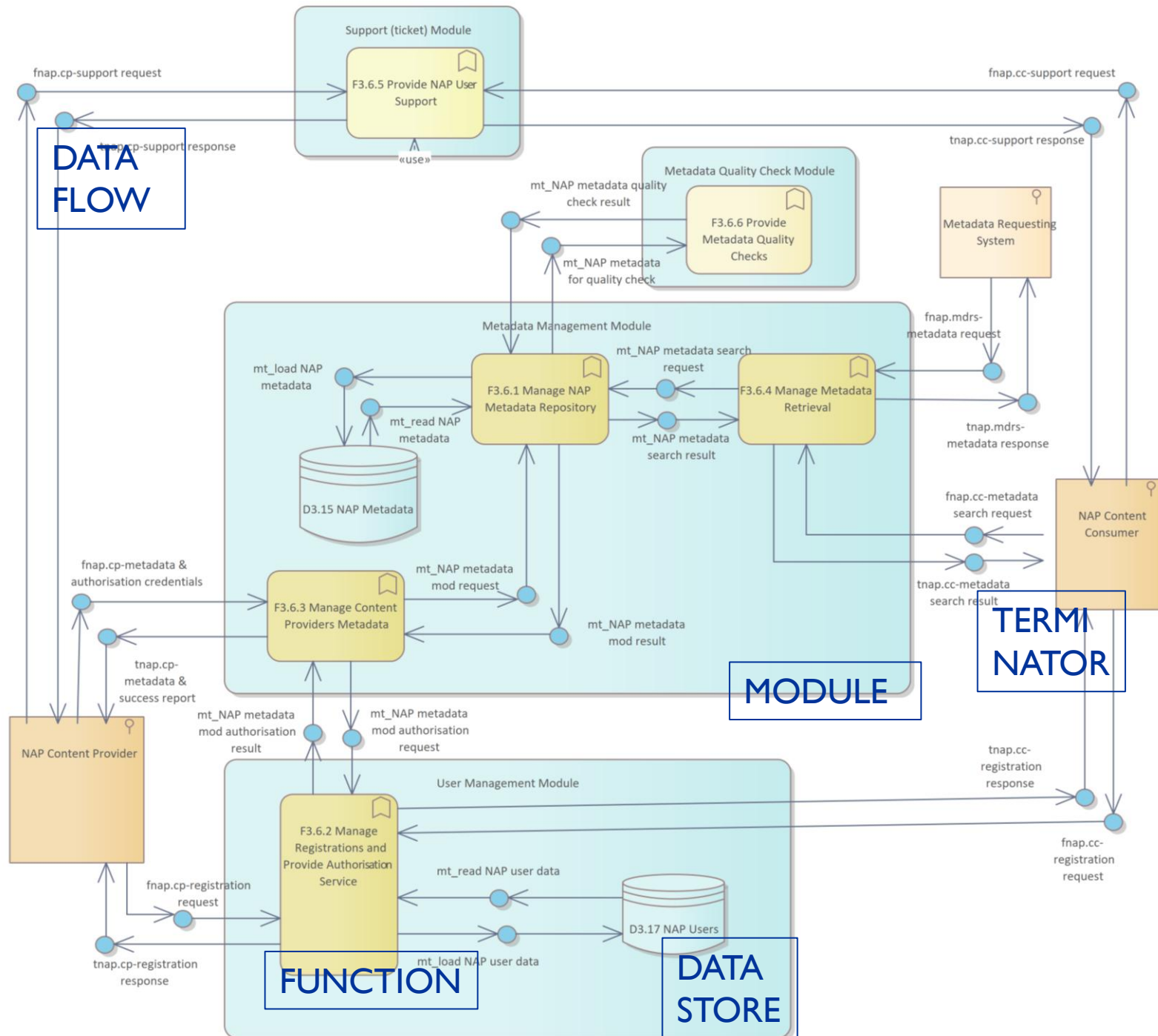
- Focuses on the system's functional aspects, defining architectural elements and their interactions. It includes:

- Functions connected via Data Flows
- Data Stores for storing and retrieving data
- Terminators and
- functions grouped into modules



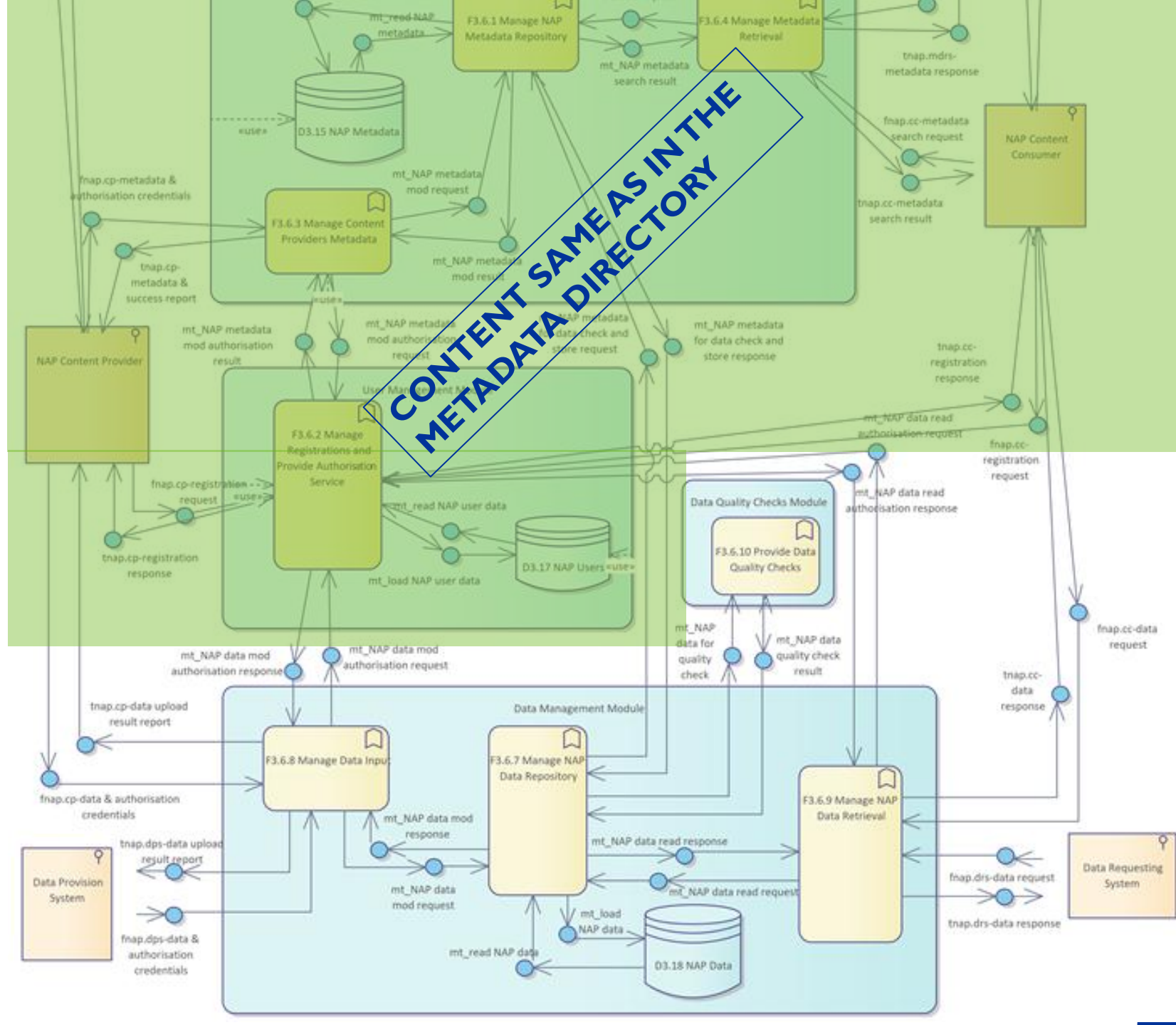
Functional View

- **Metadata Directory**
- Enable content consumers to search for and retrieve metadata stored by content providers
- Enable user management and quality check and support actions



Functional View

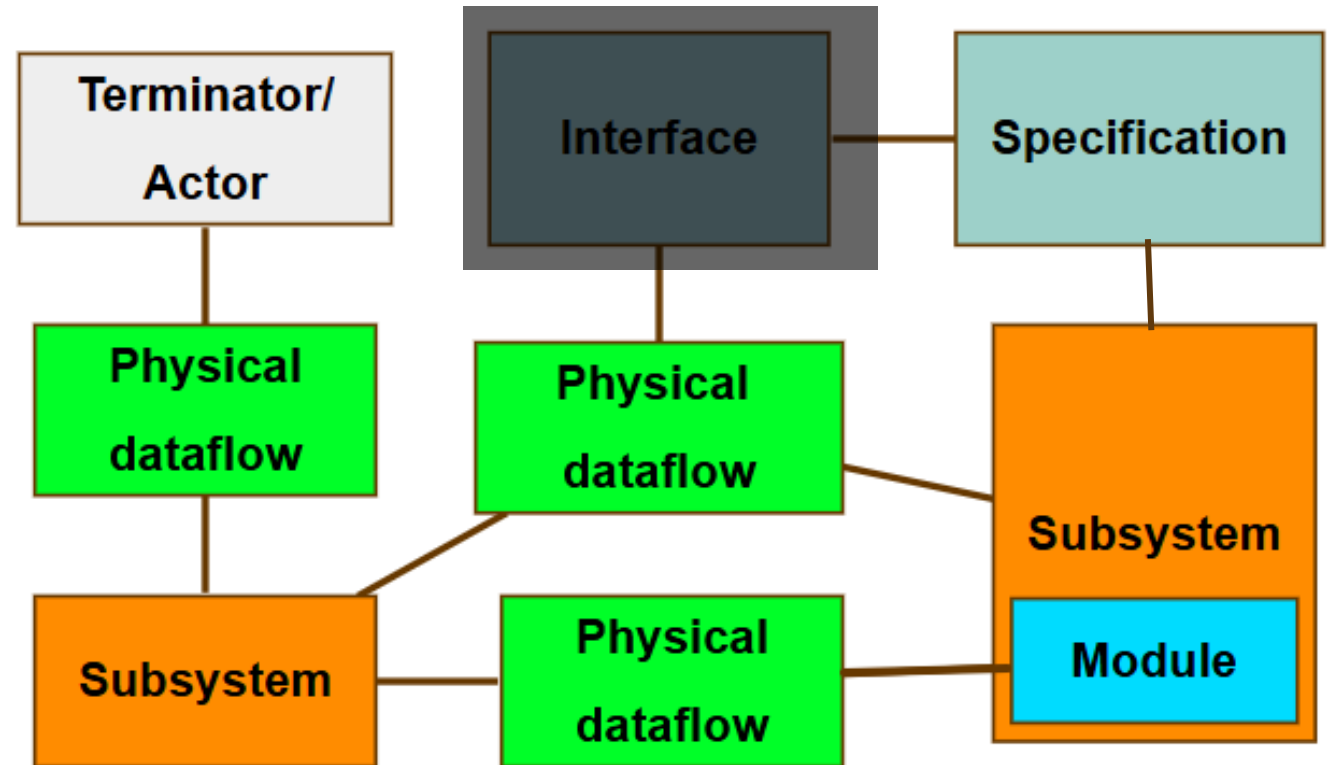
- **Data Platform**
- Enable content consumers to search for and retrieve metadata stored by content providers
- Enable user management and quality check and support actions
- **Enable data storage and retrieval**

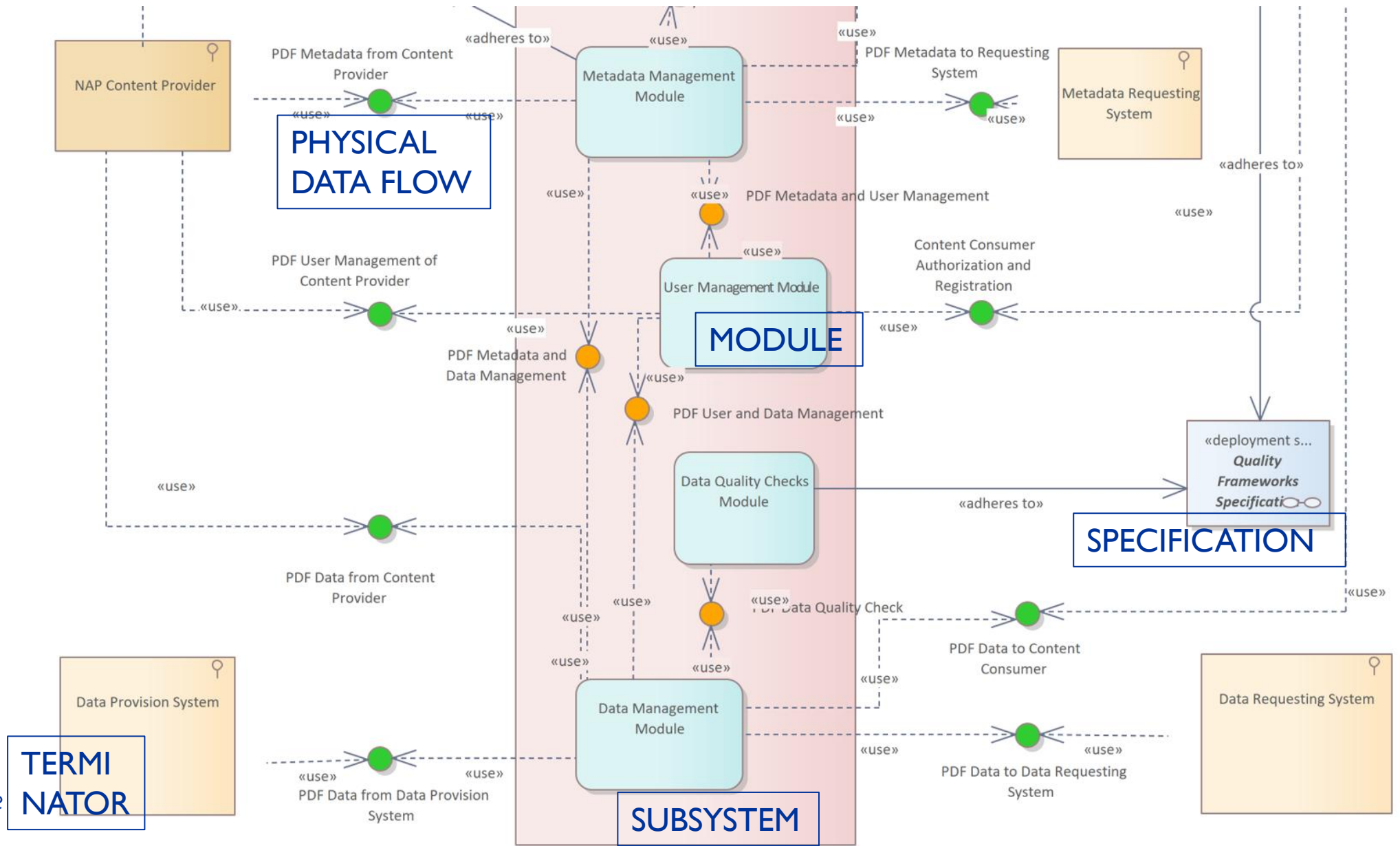


Physical View

- Describes the arrangement of physical elements, such as system elements and their connections. It includes:

- **Terminators** and
- **Subsystems** with
- **Modules** linked by
- **Physical data flows.**
- **Specifications**

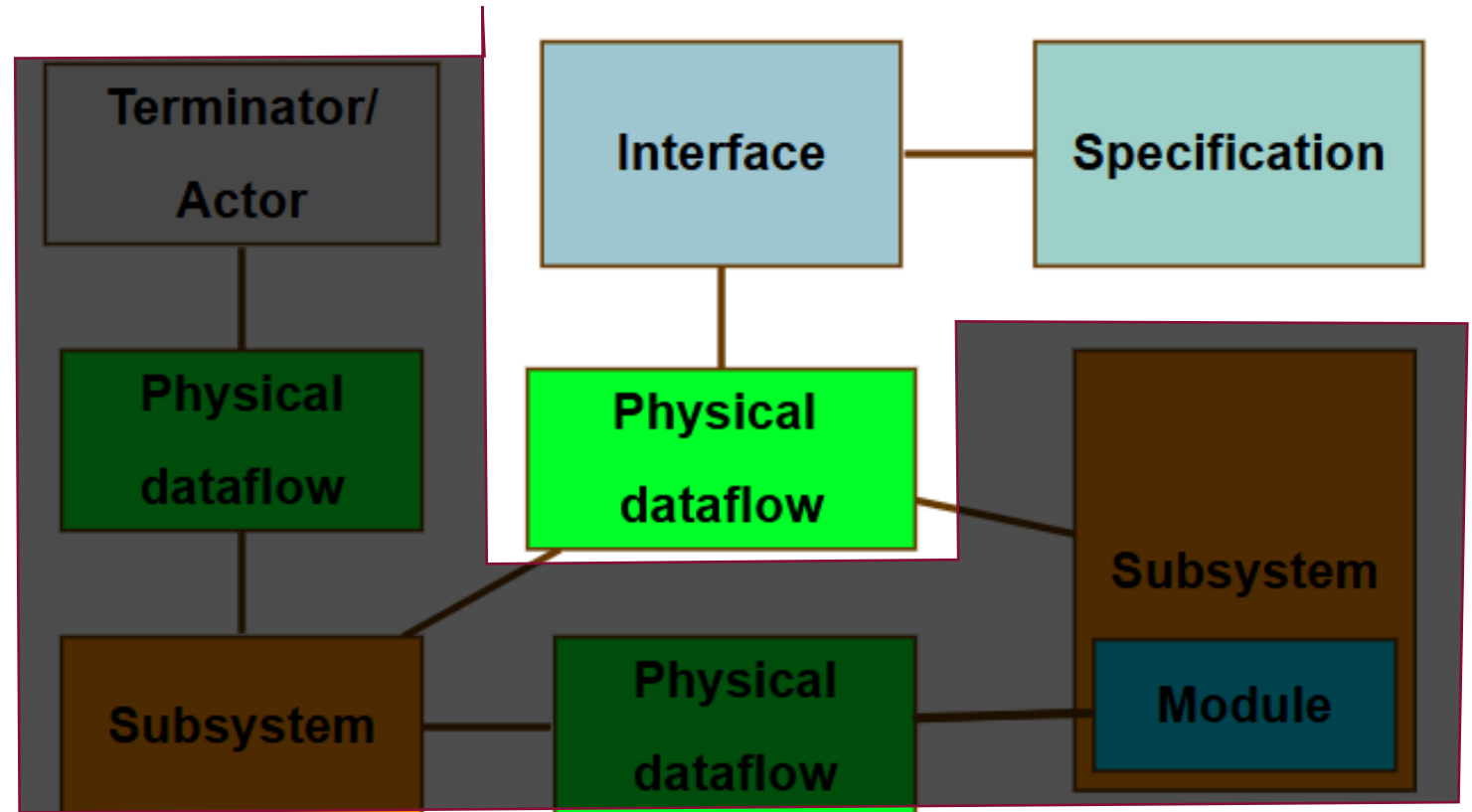




Communications view

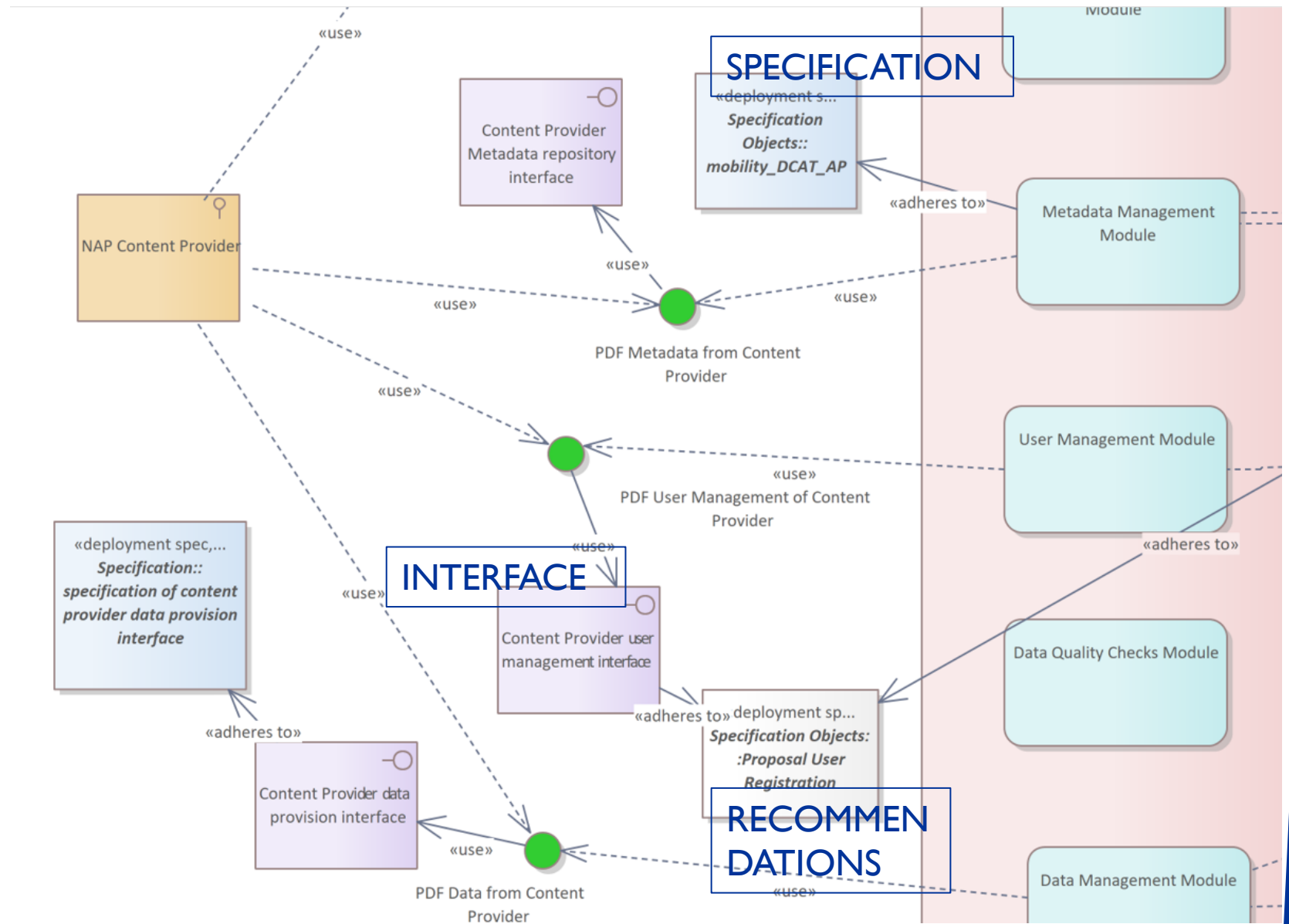
- Describes properties of communication links between physical elements. It includes:

- **Interfaces** and their
- **Specifications** and
- Recommendations
- Processes (*as a supplement*)



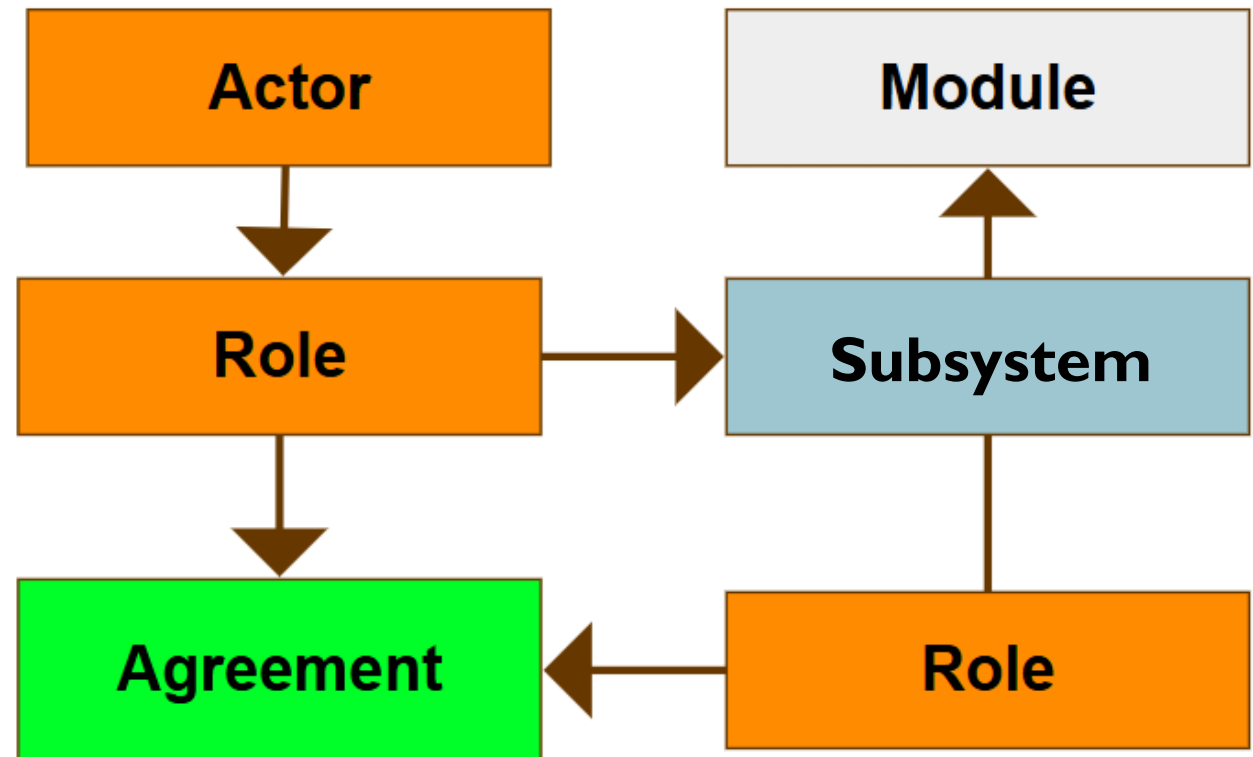
Communications view – example

- Interfaces linked to physical dataflows
- Specifications linked to interfaces of other "physical" objects.
- Ex: specification of mobilityDCAt-AP



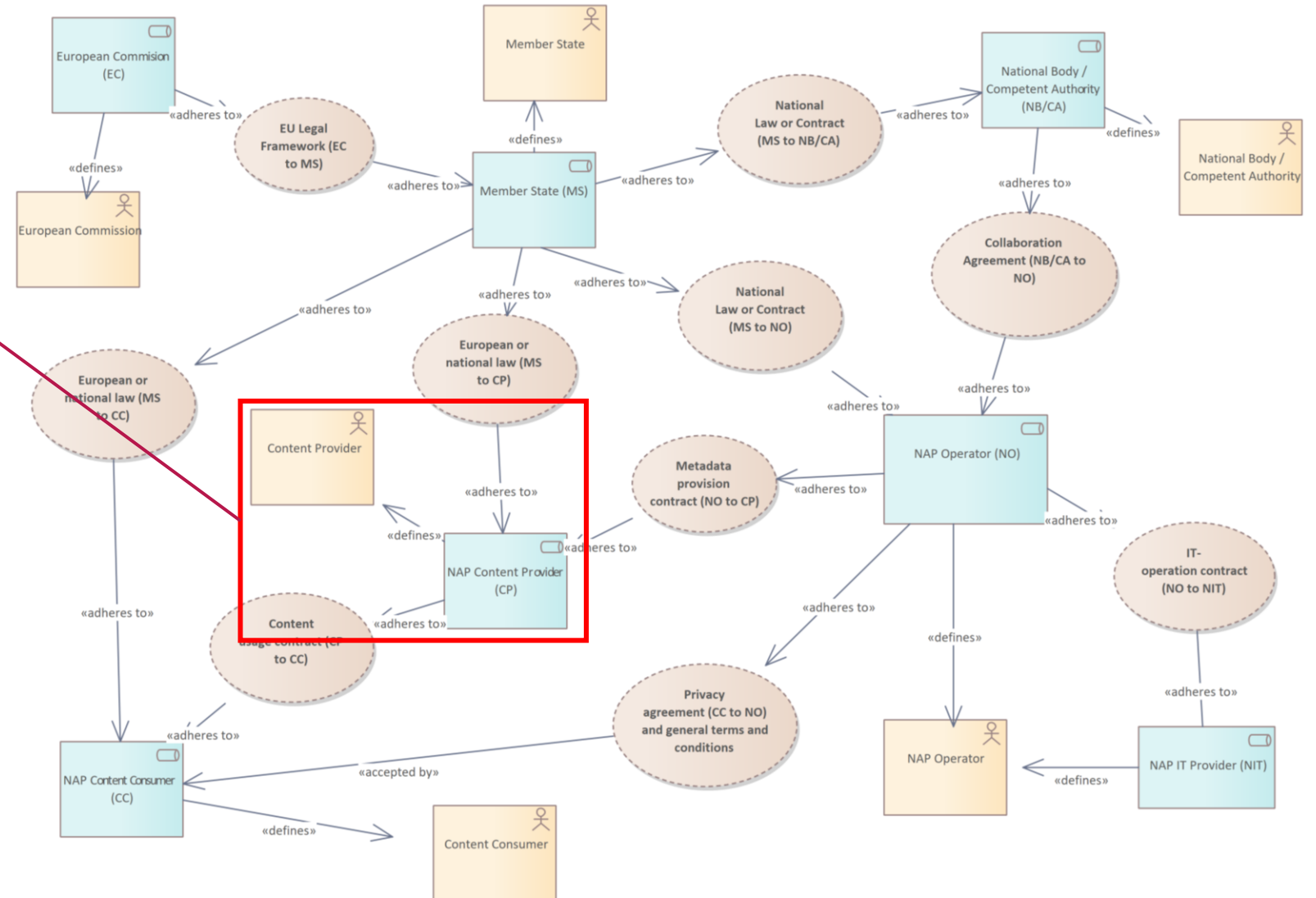
Organizational View

- Provides information about actors, their roles, responsibilities, and relationships. It includes:
 - **Actors** and their
 - **Roles** linked by
 - **Agreements.**
 - Relationship of the roles to the subsystems and modules



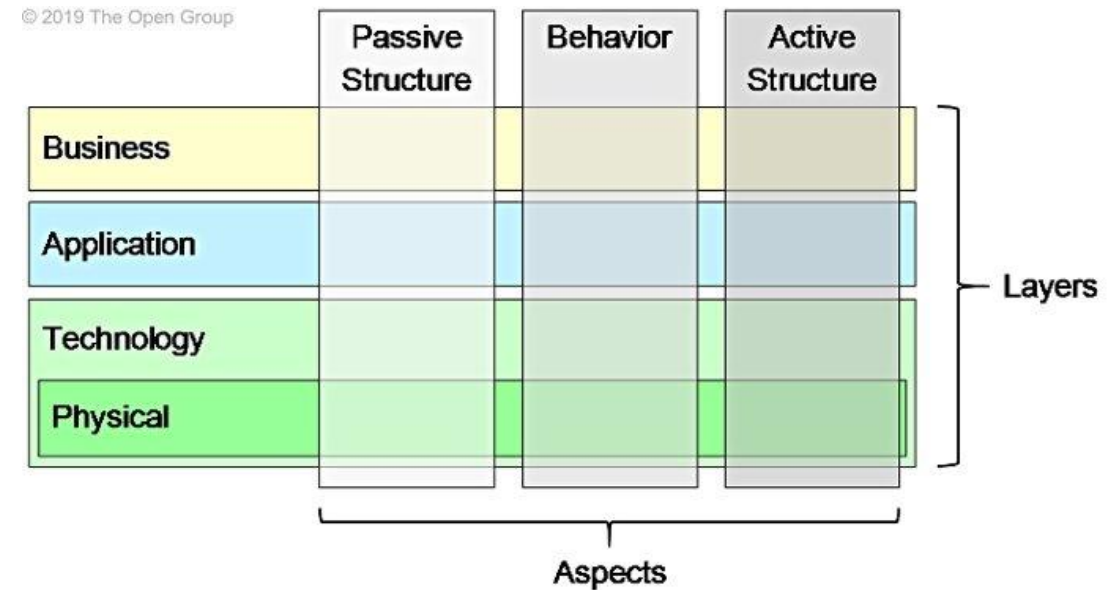
Organizational View - example

- Actors, Roles and Agreements



Safety and Security View

- **Status:** Discussing with WG4.I; planned in milestone M2.I I.
- **Key Points:**
 - Uniform security needs for metadata integrity; national variations in data processes.
 - Basic security for data access; user credentials.
 - Security implementation varies with Member States' physical systems.
 - Will include a diagram of WG4.I DATEX II's security architecture.



NLKF to NRA integration – an example

▲ KPI 1.1 Online availability

▲ ➔ Association to

- ▷  Metadata Directory NAP
- ▷  Data Platform NAP

“On-line availability” KPI assesses whether the NAP platform is online or not. In this case, both REQ and ACC value is set to 1 to reflect that the on-line availability of a NAP constitutes a fundamental prerequisite.

Values:

0: No

1: Yes

Minimum acceptable value for interoperability: 1

Creation Date: 29.07.2024

KPI Version: 2024 v0.5

Dokument_link: https://rupprechtconsultde.sharepoint.com/:w:/r/sites/NAPCOREallpartners/_layouts/15/Doc.aspx?sourcedoc=%7B7476787F-B2D1-4ADC5-5F98B8F5E1AE%7D&file=NLKF%20tables%202024%20v0.2_subset%20KPI%20description.docx&action=default&mobileredirect=true

KPI 1.1 Online availability

Requirement «FRAME_Requirement»

“On-line availability” KPI assesses whether the NAP platform is online or not. In this case, both REQ and ACC

[See more](#)

KPI 1.7 Web performance – Consistency and navigability

Requirement «FRAME_Requirement»

Not linked to NAR!

[See more](#)

KPI 1.2 Compatibility with web browsers

Requirement «FRAME_Requirement»

“Compatibility with web browsers” KPI refers to the compatibility of NAP with different web browsers. The

[See more](#)

KPI 1.8 Support of commonly used languages

Requirement «FRAME_Requirement»

“Support of commonly used languages” KPI may take four possible values. A value equal to 0 indicates that a

[See more](#)

KPI 1.3 Web performance – latency

Requirement «FRAME_Requirement»

KPI 1.9 Security – Technical

Requirement «FRAME_Requirement»

KPI 1.13 M restriction

Requirement

“Metadata

KPI 1.14 Da for data up

Requirement

“Data sec

KPI 1.15 Da for data d

Ongoing Developments

- New features like cybersecurity
- Maintenance and alignment procedures
- Combining NRA and NKLF for training
- Updating NRA to relevant NAPCORE findings

Thank you for your attention!

Benjamin Witsch (benjamin.witsch@austriatech.at)

Petr Bures (petr.bures@tamtamresearch.com)

Agenda

1

Overview of WG2 outputs – insights by task leaders

2

Round table discussion with NAP operators



TRANSPORTDATA.BE

THE BELGIAN NATIONAL ACCESS POINT FOR INTELLIGENT TRANSPORT SYSTEMS (NAP ITS)

jasper.beernaerts@ngi.be
contact@transportdata.be

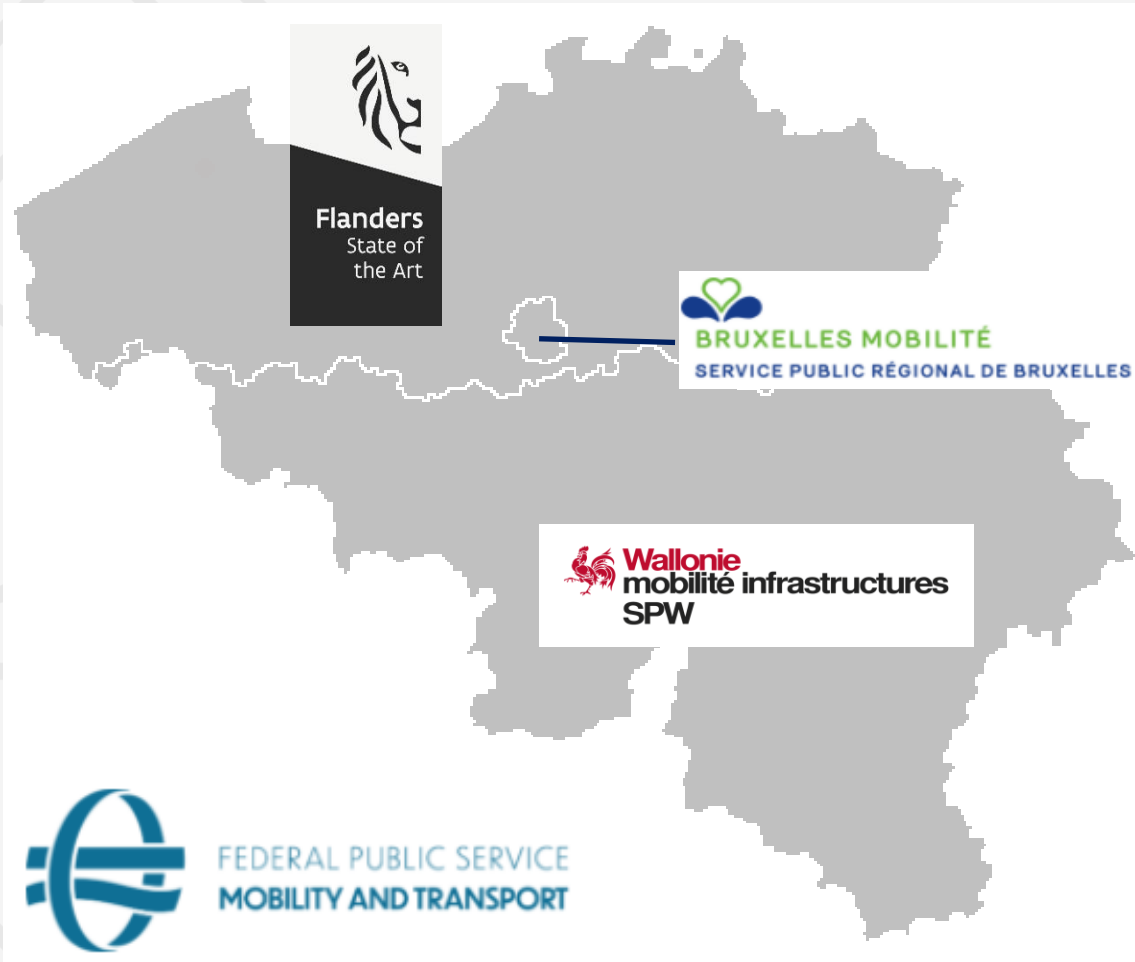


NGI
Nationaal
Geografisch
Instituut



IGN
Institut
Géographique
National

LEGAL FRAMEWORK BELGIUM



TRANSPORTDATA.BE

**Since February 2020
Covering MMTIS, RTTI, SRTI & SSTP**

- **METADATA DIRECTORY**
+ (data platform capabilities)
= Stricter evaluation

- **4 NAP OPERATORS**



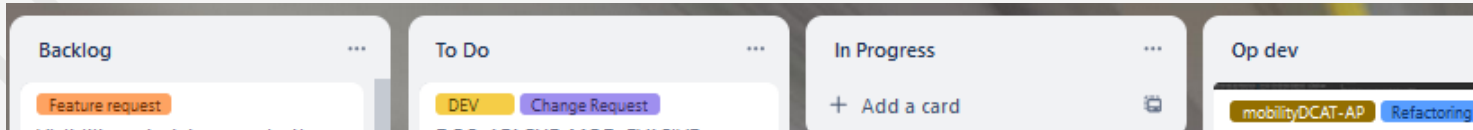
> 174 DATASETS

> 92 ORGANISATIONS

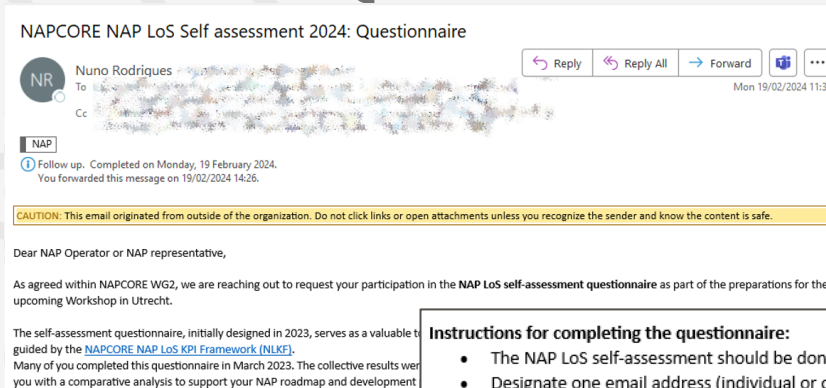
The screenshot shows the Transportdata.be website interface. At the top, the URL is <https://transportdata.be/en/>. The header includes the logo and navigation links: Datasets, Organizations, News, About, and a search bar. The main content area features a large blue banner with the text "BELGIUM'S NATIONAL ACCESS POINT FOR INTELLIGENT TRANSPORT SYSTEMS (NAP ITS)". Below this is a search bar for datasets and services, with a placeholder text "e.g. car sharing, train, bike hire,...". To the right of the search bar is a section titled "Add datasets and services" with a description and an "Add Data" button. Below the search bar are popular tags: Bus, Rail (including hig..., and Car. The bottom section contains a helpdesk contact link, instructions on how to register datasets and services, a newsletter subscription form, and a video player showing an introduction to Transportdata.be. The video player has a play button and a "Bekijken op YouTube" link. Below the video player is a grid of four tiles labeled MMTIS, RTTI, SSTP, and SRTI, and a light trail image of a highway.

LoS KPI's AS GUIDELINE FOR ROADMAP

- **BE: BACKLOG WITH 250+ IDEAS TO MAKE OUR NAP BETTER**



- **STANDARDISED QUESTIONNAIRE**



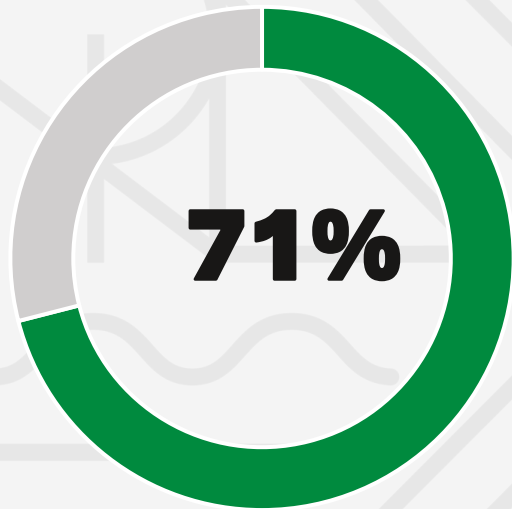
Instructions for completing the questionnaire:

- The NAP LoS self-assessment should be done using this [form](#);
- Designate one email address (individual or organization) as the primary contact;
- Each KPI includes a "Suggestion for Improvement" text box for additional questions;
- General comments for each feature category can be added in the provided text box;
- Suggestions will be analyzed and categorized for discussion during or after the workshop;
- Mandatory answers are required for all KPIs to establish a baseline. If uncertain, please provide a best guess.

- **ALLOWS FOR**
 - **PRIORITIZATION THROUGH LOS BENCHMARK SCORES & DEFINITION OF 'GAPS'**
 - **JUSTIFICATION OF INVESTMENTS**

LoS 2023 BELGIUM

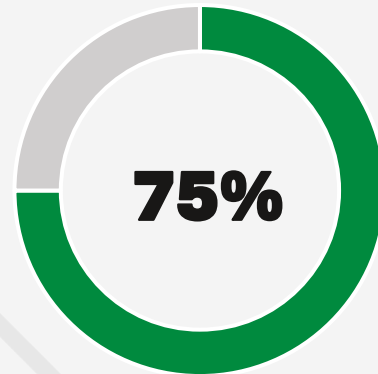
OVERALL



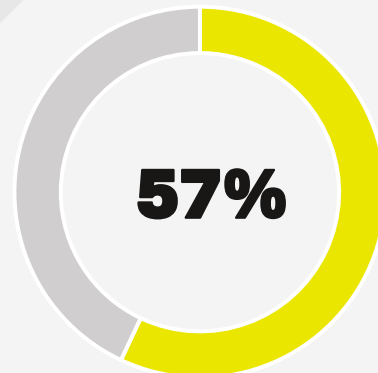
#1

ADVANCED

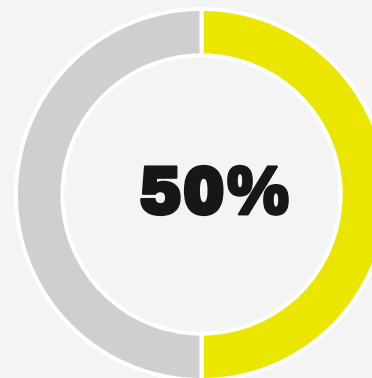
ACCESS



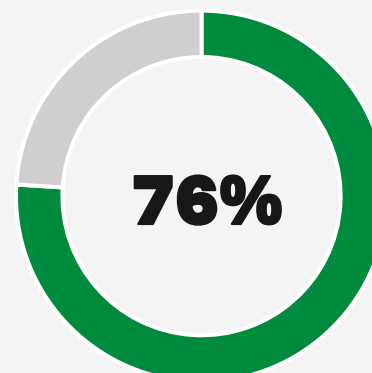
UPDATE & MAINTENANCE



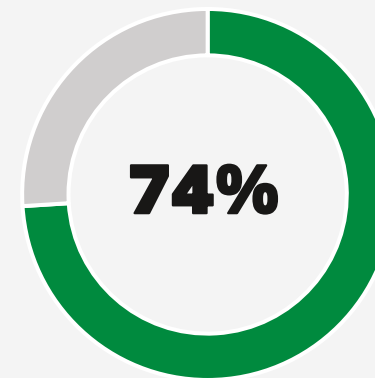
COMMUNICATION



DATASET INFORMATION



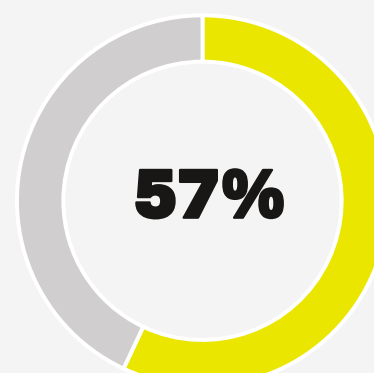
DATA DISCOVERY



INTEROPERABILITY

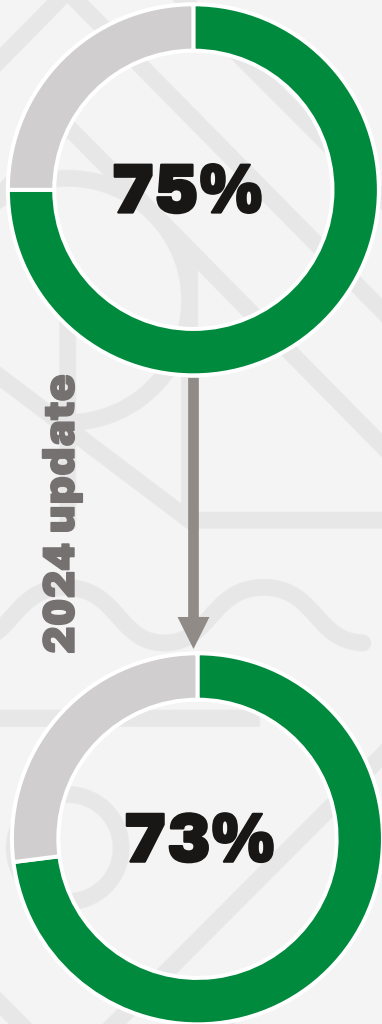


DATA EXCHANGE & OPERATIONAL POLICY



ACCESSIBILITY

ACCESS



22. Support of commonly used languages (KPI 1.8) *

Which languages does the NAP support?

Note: This is relevant to the webpage while this is not relevant to the metadata/data content that depend on its publisher.

- ☐ Supports national language only, other than EN
- ☐ Supports EN but some content in national language only (other than EN)
- ☒ Supports EN for platform and all content (user interface and all text content)

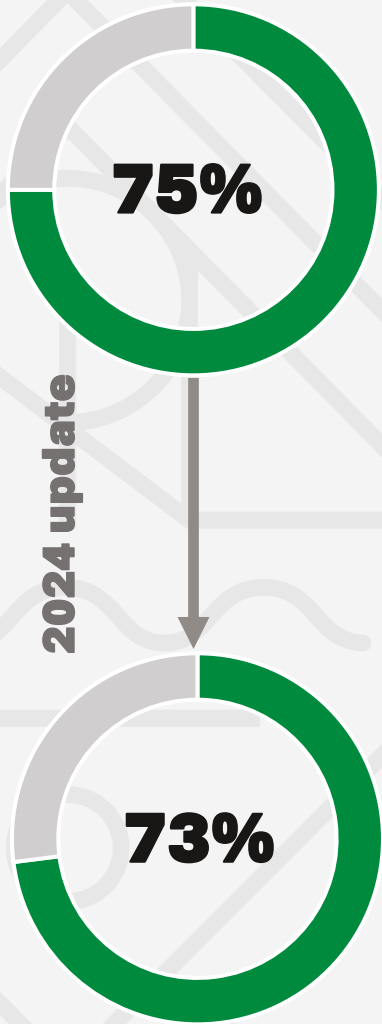
24. Security – Technical (KPI 1.9) *

Does the NAP use SSL security certificates (i.e., HTTPS protocol) for access?

- ☐ Absence of security certificates
- ☐ Partial existence of security certificates (e.g., in the landing page but not in the elements of the main sitemap)
- ☒ Existence of security certificates in the entirety of the platform's elements

ACCESSIBILITY

ACCESS



30. Procedure for input of metadata or data to the NAP (KPI 1.12) *

In what way can data providers add data and/or metadata to the NAP?

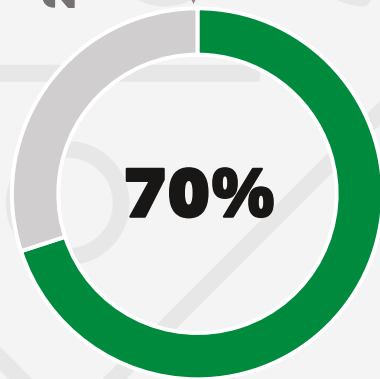
- ☐ No data or metadata can be provided via the NAP online/web interface
- ☐ Data resource metadata and/or providers' data is added by the NAP operator
- ☐ The data providers are inputting data and/or metadata themselves, no verification process is performed from the NAP side
- ☐ The data providers are inputting data and/or metadata + content of the (meta)data is verified manually in some random samples by the NAP operator (like technical or logical check of correct input type or completeness of the mandatory fields)
- ☒ The data providers are inputting data and/or metadata + content of the (meta)data is verified (partially) automatically by the NAP (there is some verification process automatically running, like technical or logical check of correct input type or completeness of the mandatory fields)

COMMUNICATION

COMMUNICATION



2024 update



mailchimp

54. 2.4 - NAP promotion – number of channels *

Were official channels used to regularly promote the NAP within the last calendar year?

For instance, conferences, webinars, social network, homepage, printed media, flyers, etc.

55. 2.4.1 - NAP promotion – number of channels used

How many promotional channels were used regularly within the last calendar year?

57. 2.5 - NAP promotion – number of publications *

How many publications were made by the NAP operator and/or national body within the last calendar year using the channels mentioned in KPI 2.4?



April 2024 - Newsletter 13

Results compliance assessment Belgian NAP ITS 2023



The Belgian National (Control)Body is commissioned to check if the NAP ITS stakeholders comply with the requirements of the ITS Delegated Regulations. By performing a yearly assessment, it aims to ensure high quality metadata and re-usability of the data registered on the NAP, which are important for actors interested in re-using data in their services or applications.

To this end, the National (Control)Body randomly selected a series of datasets for the 2023 assessment. After a thorough quality check, the National (Control)Body submitted the detailed results and its conclusions to the regional and federal transport and mobility authorities and the NAP Helpdesk.

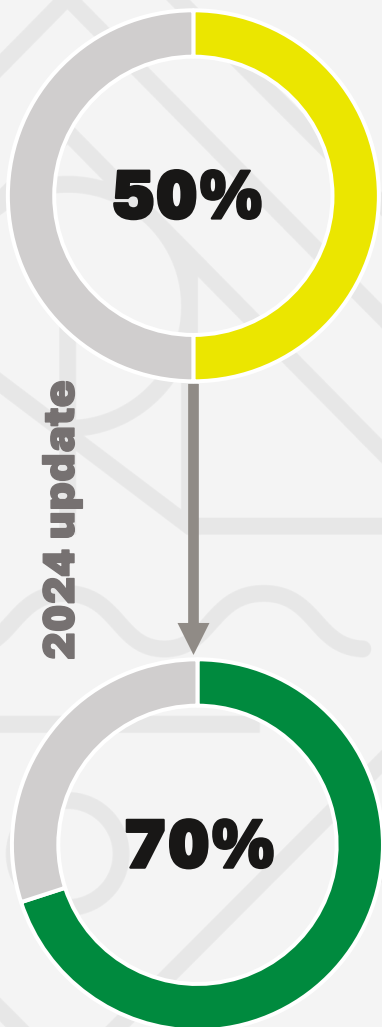
🎉 Congratulations to the 37 datasets that received a positive assessment for their respective Delegated Regulation(s). For most of these datasets the National (Control)Body formulated some minor adjustments to be made. Furthermore, we would like to specifically mention the following organizations for being in compliance with no remarks for the assessed datasets:

- SPW Mobilité et Infrastructures for «Réseau routier géré par la région wallonne», «Ouvrage d'art de la Région wallonne» and «Aires autoroutières Wallonie».
- Infrabel for «Ponctualité à l'arrivée à Bruxelles / Stiptheid bij aankomst in Brussel» and «Ponctualité nationale par moment et par mois / Nationale stiptheid per moment en per maand»
- Agentschap Wegen en Verkeer for «TN-ITS»
- TEC for «TEC GTFS»

✗ On the other hand, 34 of the assessed datasets received the verdict of "non-compliance". The NAP Helpdesk will contact all assessed organizations that received

COMMUNICATION

COMMUNICATION



60. Mass notifications – data consumers (KPI 2.8) *

Are mass notifications available on the NAP website for the registered data consumers?

Mass notification means: ability to deliver a message or information to all data providers.

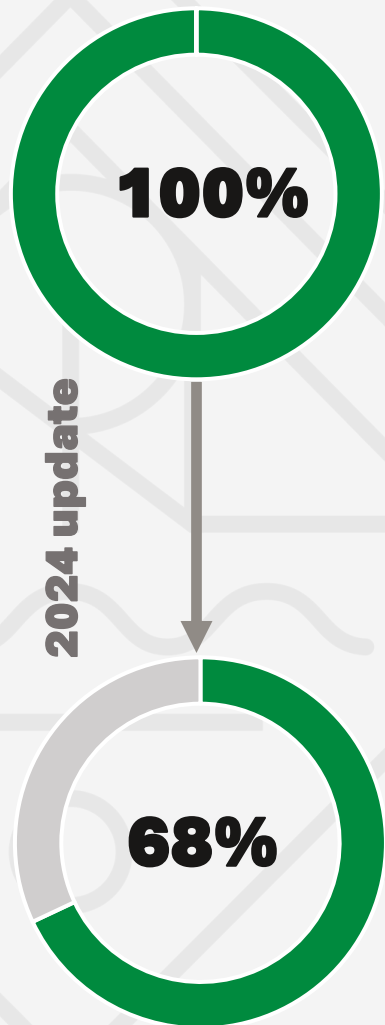
Example of a Mass notification could be: "Inform all data providers that the use of Mobility DCAT-AP is mandatory from 2025."

- ☒ No data consumer user accounts / no registrations
- ☐ Mass notifications are not available to registered users
- ☐ Mass notifications are possible only for legal (T&C) updates
- ☐ Mass notifications are possible for legal and content updates, news
- ☐ Mass notifications are tailored according to the data consumer's needs
- ☐ Mass notifications are available on the NAP website to the registered data consumers

- **BUT NAP DESIGN CHOICES LIMIT OUR SCORE**
 - **QUESTIONNAIRE INVITES YOU TO REVISIT DESIGN CHOICES**
 - **BE: NEWSLETTER AS TOOL**

INTEROPERABILITY

INTEROPERABILITY



- **RELEASE OF mobilityDCAT-AP IN NOVEMBER 2023**
- **ADDITIONAL KPI's**

69. Machine-readable metadata (KPI 3.3) *

Is machine-readable metadata provided by the NAP?

- ☐ No availability of machine-readable metadata
- ☐ Provision of machine-readable metadata in a self-describing format (JSON, XML, ...)
- ☒ Provision of machine-readable metadata as Linked Data ("RDF" that also can be expressed in JSON-LD, ...) in a self-describing format
- ☐ Provision of machine-readable metadata in a self-describing format complying to commonly agreed standard mobilityDCAT-AP

85. Metadata specification (KPI 6.1) *

Has the NAP adopted the Coordinated Metadata Catalogue or the mobilityDCAT-AP?

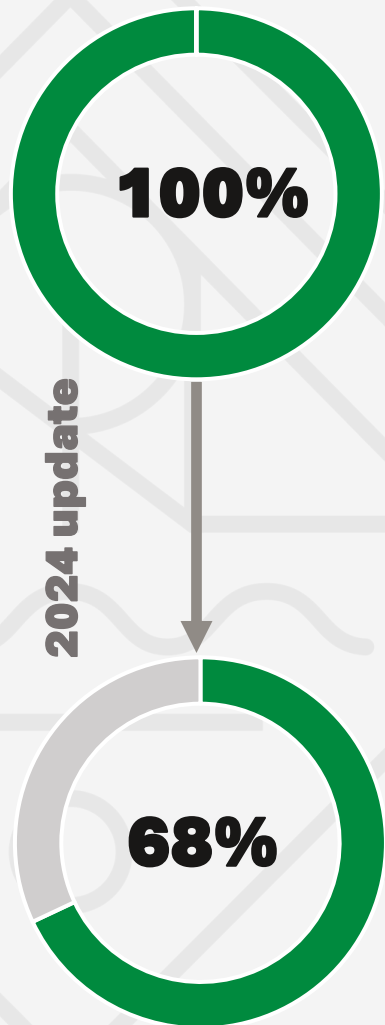
- ☐ The NAP did not consider suggestions from the mobilityDCAT-AP
- ☒ The NAP considered suggestions from the mobilityDCAT-AP, but the available metadata deviates – to some extent – from that specification (e.g., NAPs that had partial or full adoption of the EU-EIP specification – the Coordinated Metadata Catalogue)
- ☐ Full compliance/adoption with the MobilityDCAT-AP specification



Currently implementing mobilityDCAT-AP

INTEROPERABILITY

INTEROPERABILITY



- **INTERNAL DATABASE STRUCTURE NOT SUFFICIENT**
 - **PROVIDE RDF-ENDPOINT**
 - **HARVESTING SHOULD BE THE GOAL**
 - **PROMOTION OF ENDPOINT PROVISION BY NAPCORE**

88. Harvesting functionalities (KPI 6.2 extension)

Which kind of support is provided? You can select more options:

- ☒ Provision of metadata for harvesting interface of other NAPs (i.e., machine-to-machine readable metadata as Linked Data)
- ☒ Existence of harvesting interface for integration (e.g., indexing) of data sets from other portals

CONCLUSION

- **LoS FRAMEWORK ALLOWS YOU TO:**
 - **ASK NEW QUESTIONS**
 - **QUESTION PAST DECISIONS**
 - **PRIORITIZE PLANNED DEVELOPMENTS**

- **PROVIDES YOU WITH:**
 - **OBJECTIVE BENCHMARK**
 - **JUSTIFICATION FOR MADE & ADDITIONAL INVESTMENTS**

- **IDEALLY: FIND MEMBER STATE/NAP THAT CAN HELP YOU (THROUGH NAPCORE)**
- **BUT: CONTEXT IS REQUIRED FOR INTERPRETING SCORES**





mobilithek

Germany's data platform that gets
you moving.

Comparison of NRA and German NAP implementation (Mobilithek)

Holger Drees

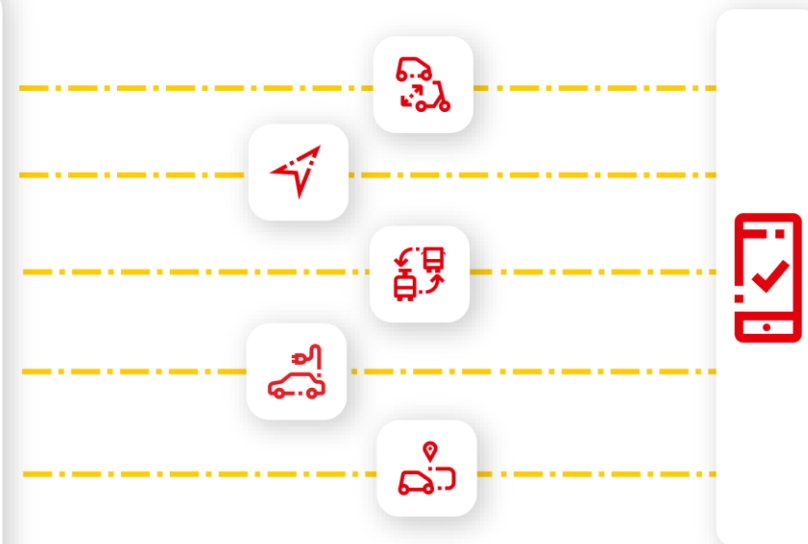
Mobility Data Days, Turin

7 November 2024



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Germany's platform for data that
makes a difference



Data provider

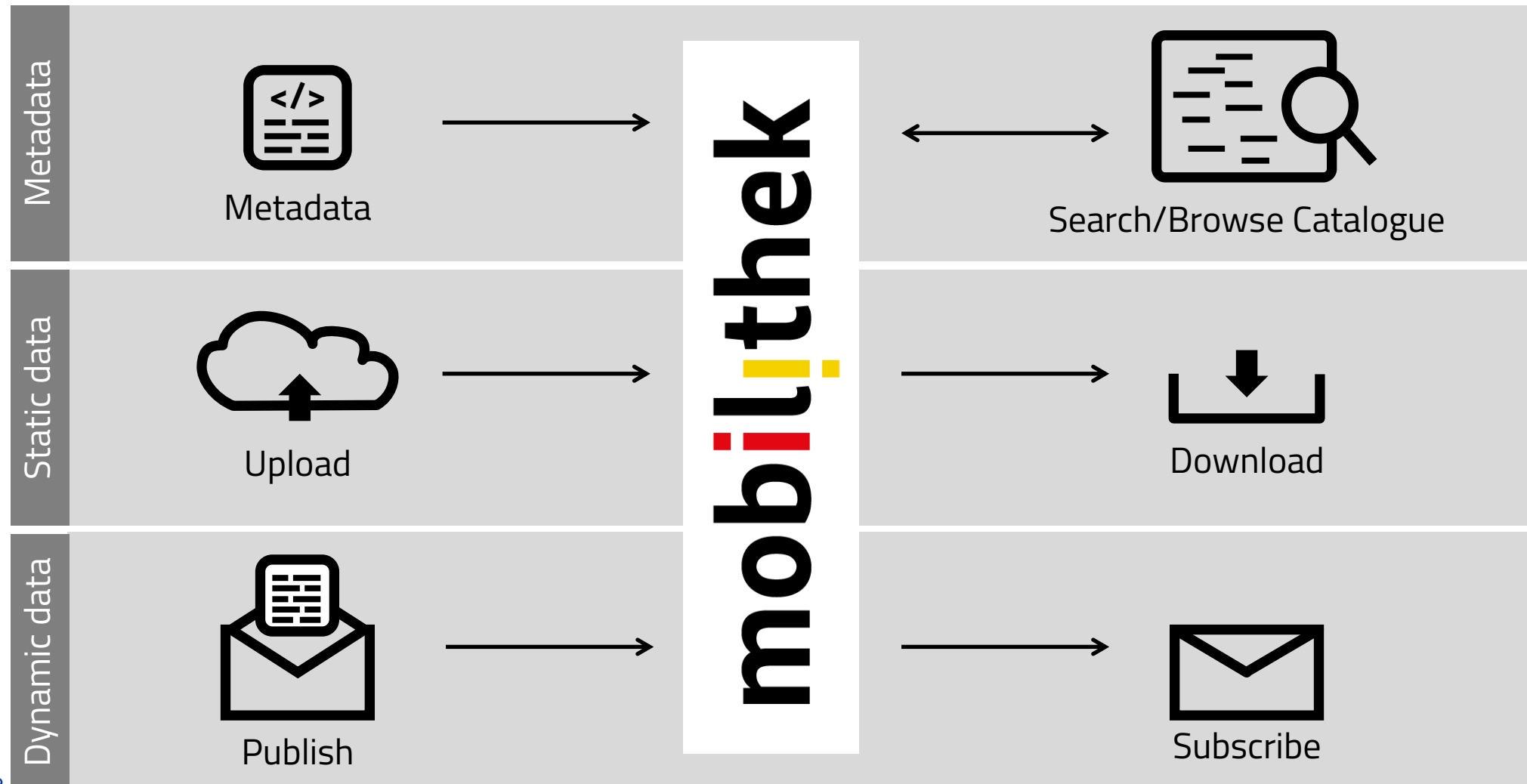


Data clients



Mobile
people

Mobilithek functionalities

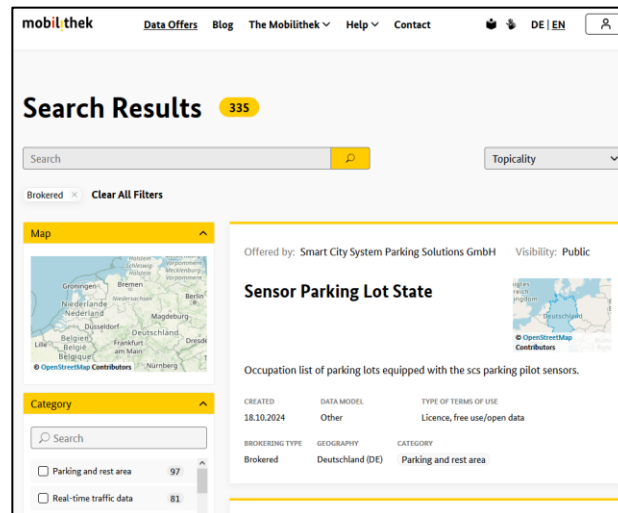


Mobilithek functionalities



Basis for comparison NRA <> Mobilithek

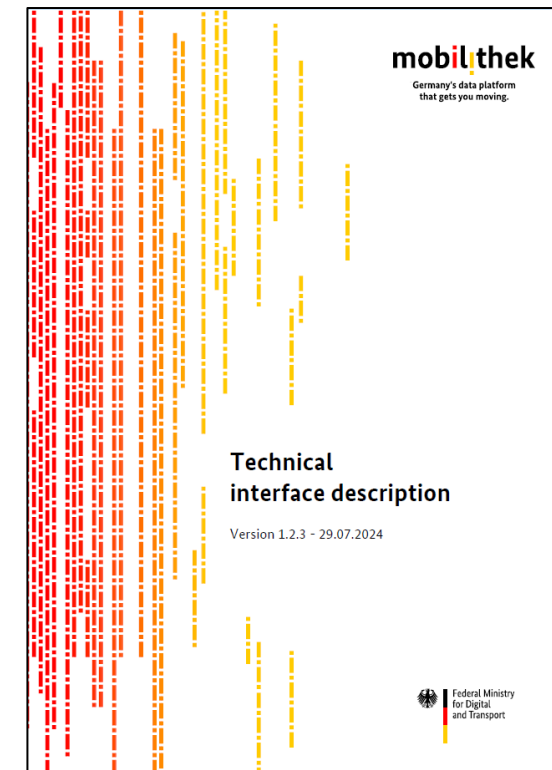
Search GUI



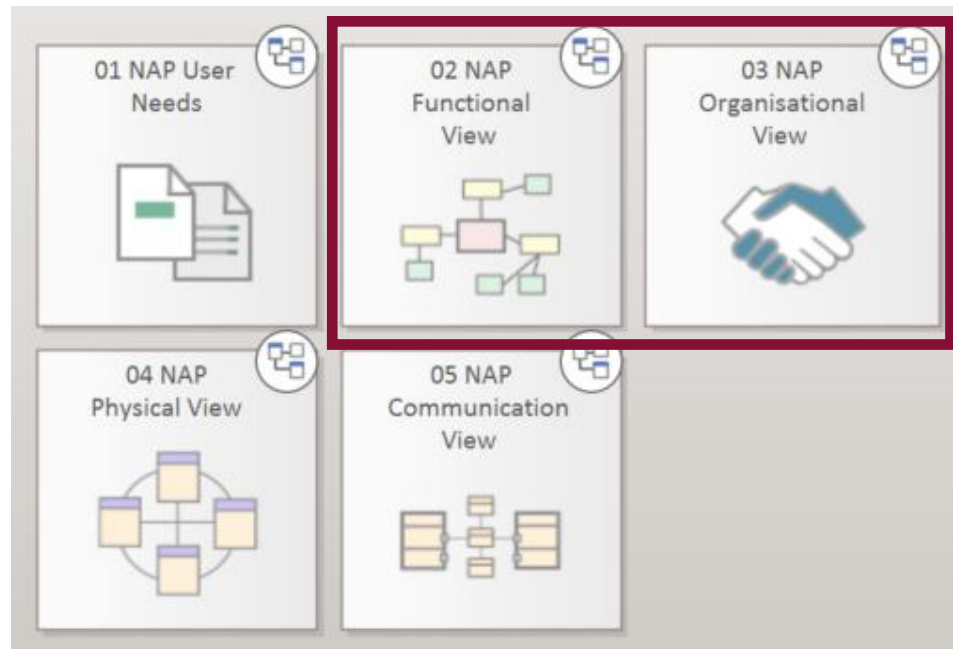
Technical specifications (internal doc, german)



Technical interface description (available on mobilithek.info)

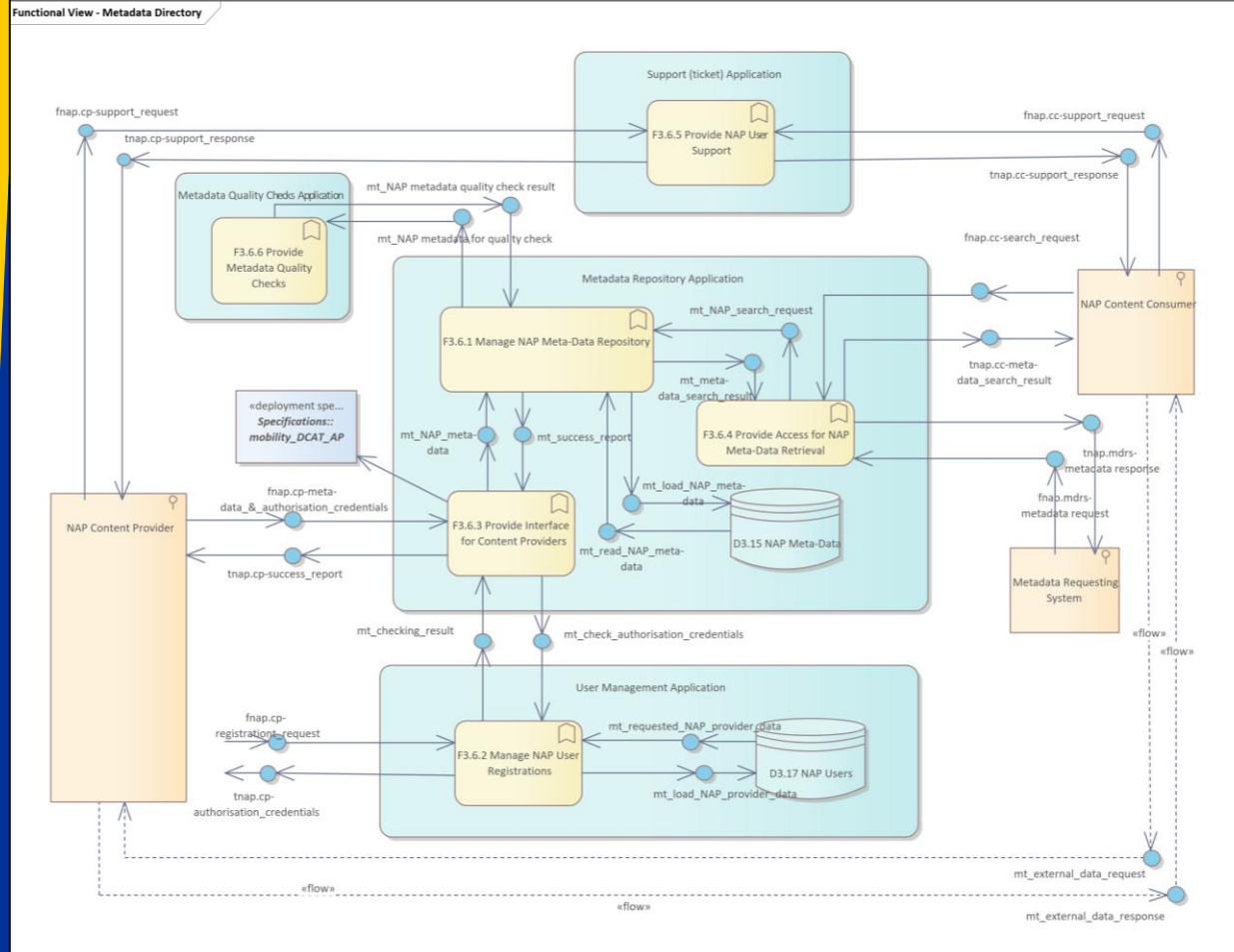


NRA Views to be compared



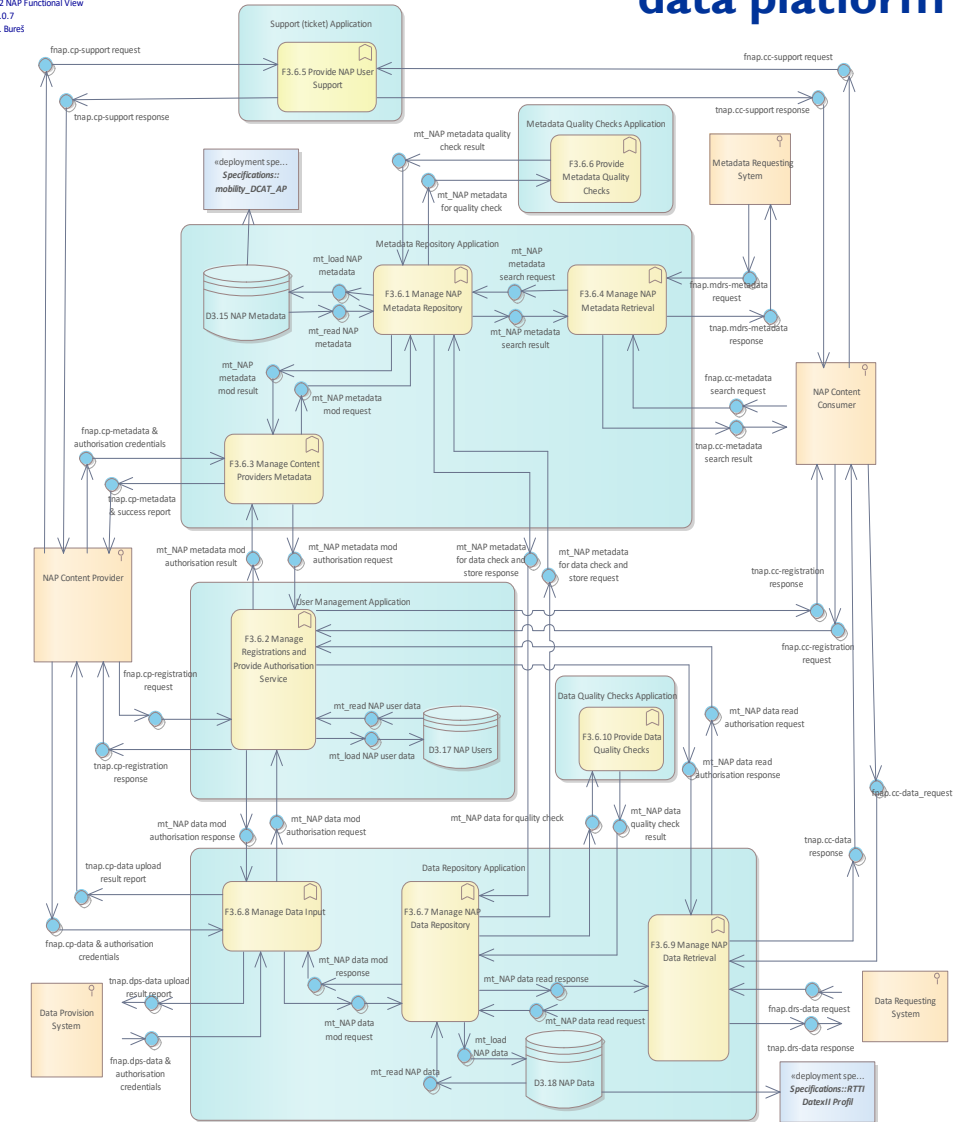
Functional View

metadata directory



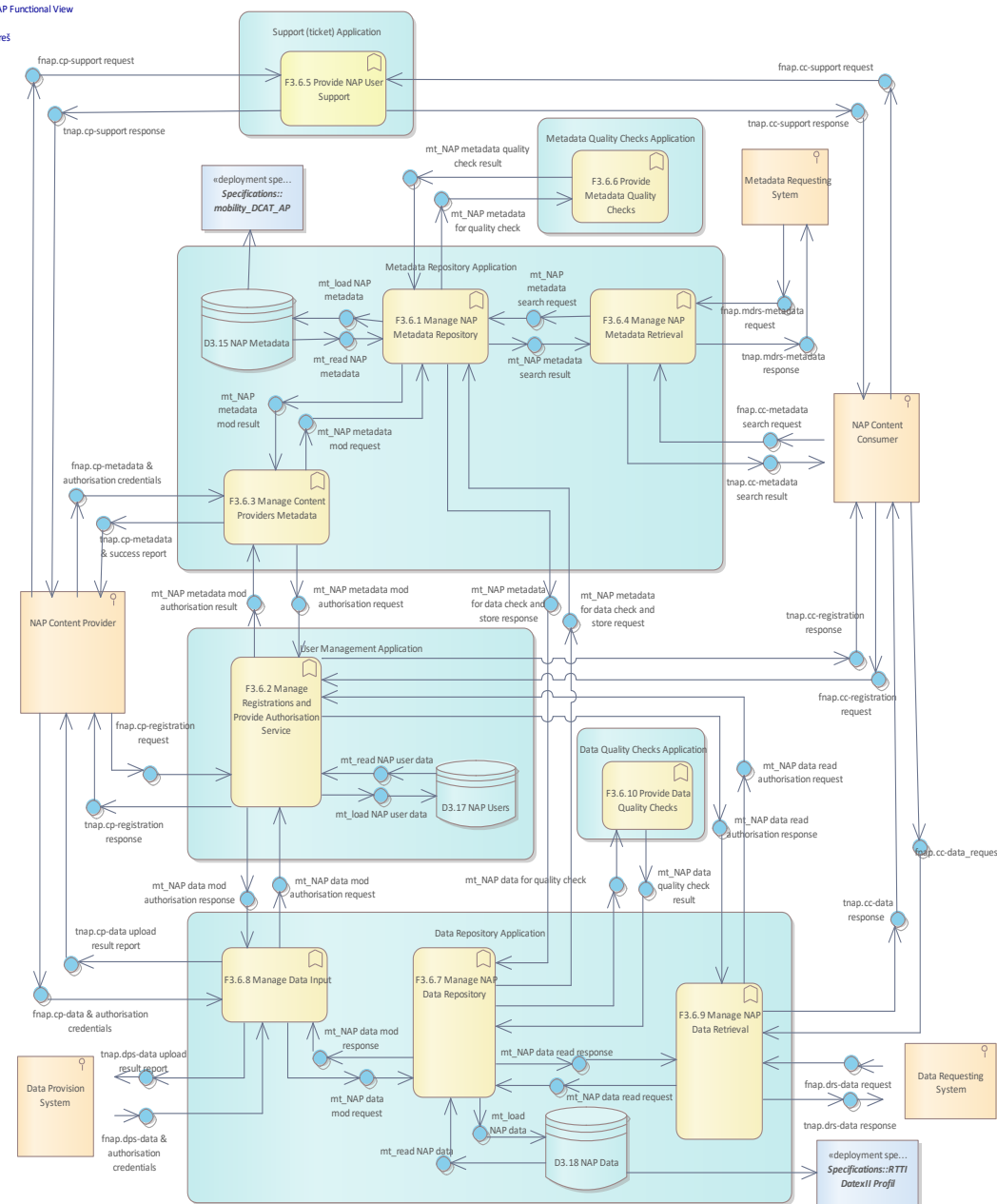
Name: 02 NAP Functional View - Data Platform
Package: 02 NAP Functional View
Version: 7.0.7
Author: P. Bureš

data platform



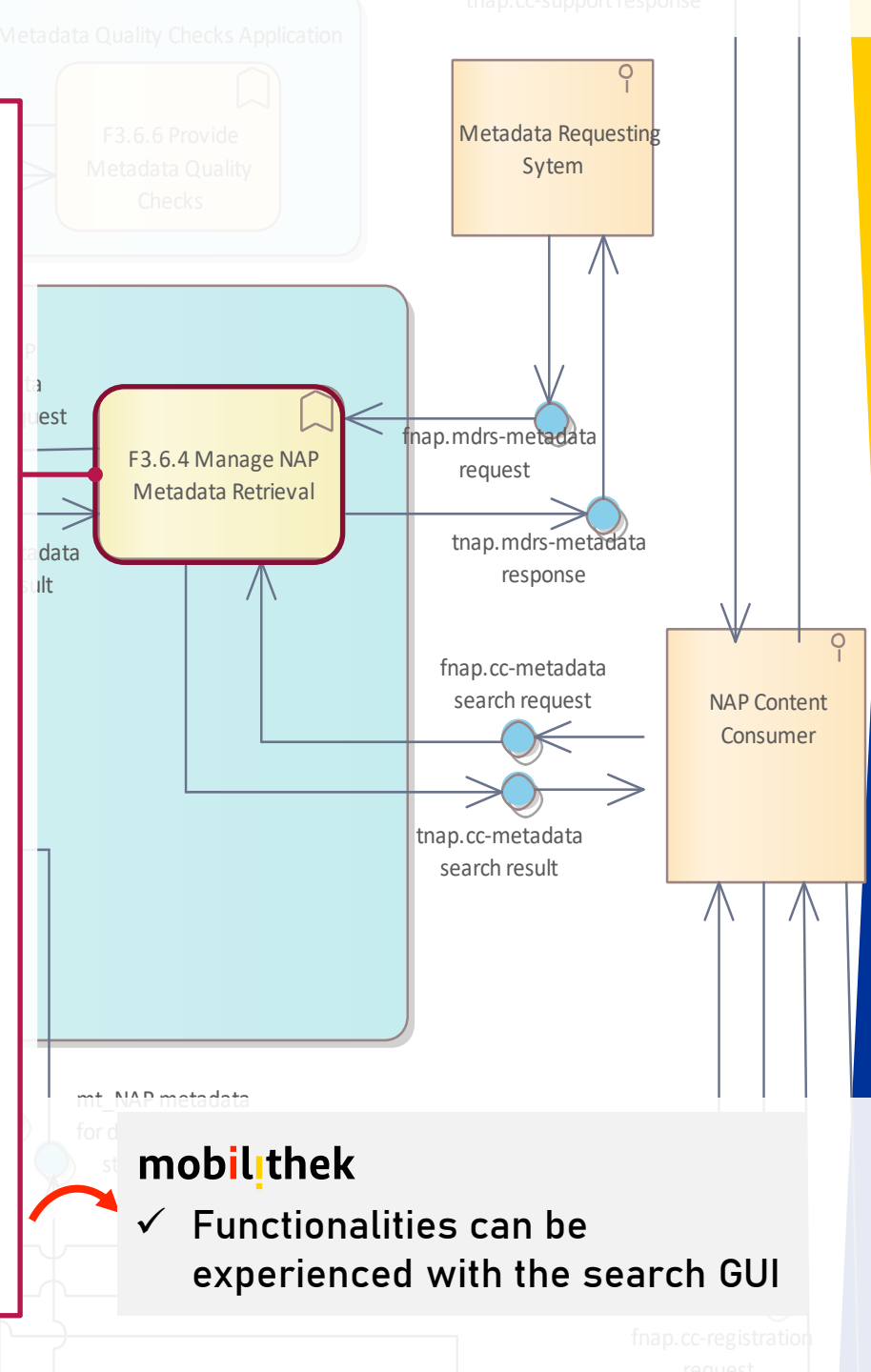
Functional View

Name: 02 NAP Functional View - Data Platform
 Package: 02 NAP Functional View
 Version: 7.0.7
 Author: P. Bures



F3.6.4 Manage NAP Metadata Retrieval

- (1) The ability to **provide a query form** or comparable search interface to define keywords or refine demands in different available metadata elements.
- (2) The ability to **receive and process requests from NAP Content Consumers** to be provided with NAP metadata.
- (3) The ability to process the request in (1) above so that all suitable search results to the request are **retrieved from the Data Store NAP Metadata**.
- (4) The ability to format the NAP metadata search results obtained in (3) above and send it to the entity that made the request in (2) above or to **display them in an overview results page**.
- (5) Ability to provide metadata at the NAP including data created by the NAP, i.e. quality records.
- (6) Ability to provide all or parts of metadata stored in the NAP Metadata store in a **machine-readable format** for reasons of harvesting the metadata by Metadata Requesting System (machine to machine access).
- (7) The ability to provide all relevant metadata without NAP Content Consumer registration



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✓ Functionalities can be experienced with the search GUI

tnap.mdrs-metadata response

It contains outputs to the Metadata Requesting System that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are items of NAP Metadata which have been retrieved from the store of NAP Metadata following a previous request. Data are formatted as DCAT-AP records **compliant with mobilityDCAT-AP**.

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- mobilityDCAT-AP compliance partly provided
- Full implementation of mobilityDCAT-AP ongoing

Interoperability ...

... between NAPs?

... or with a potential Europe-wide metadata
catalogue?

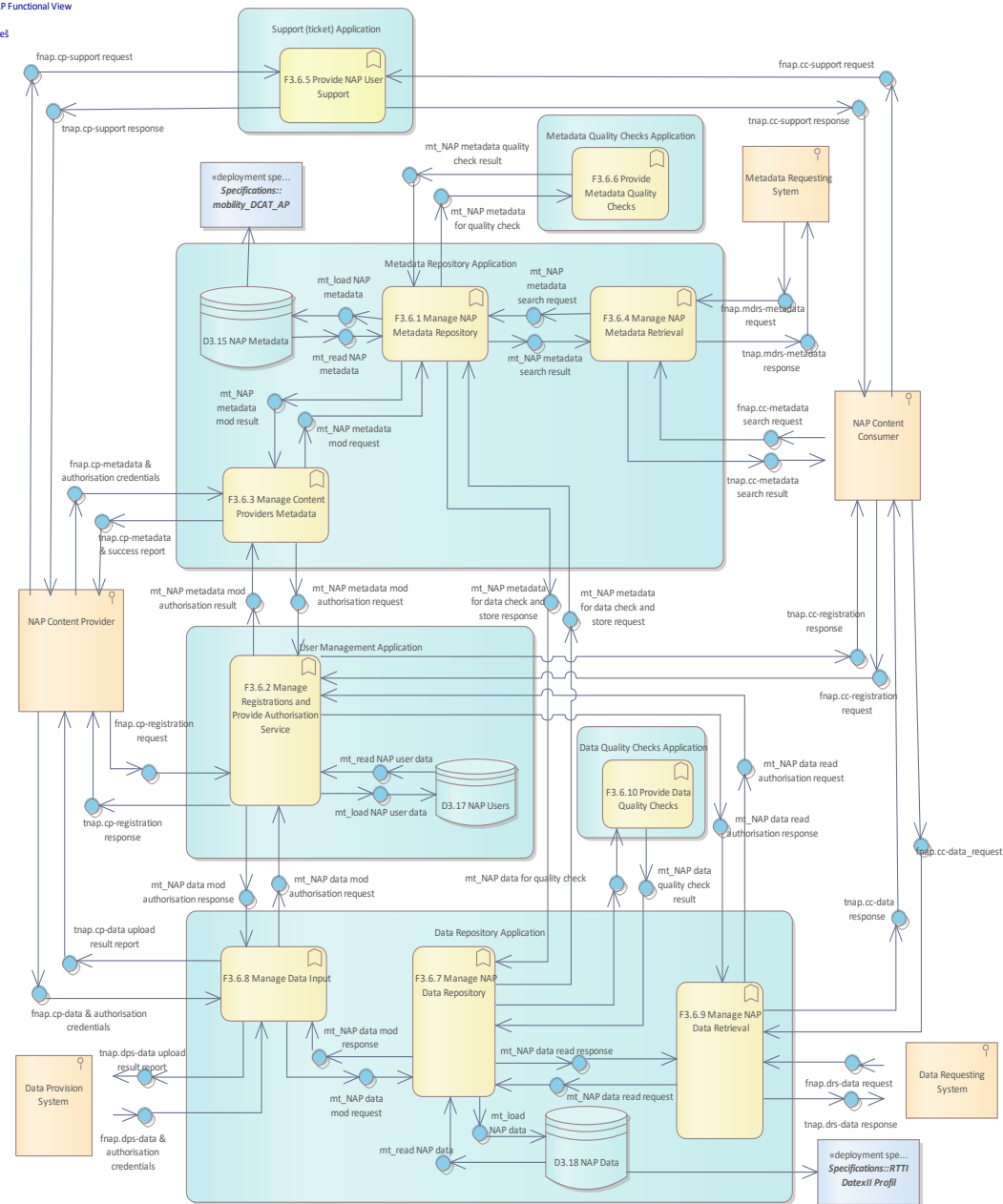
tnap.mdrs-metadata response

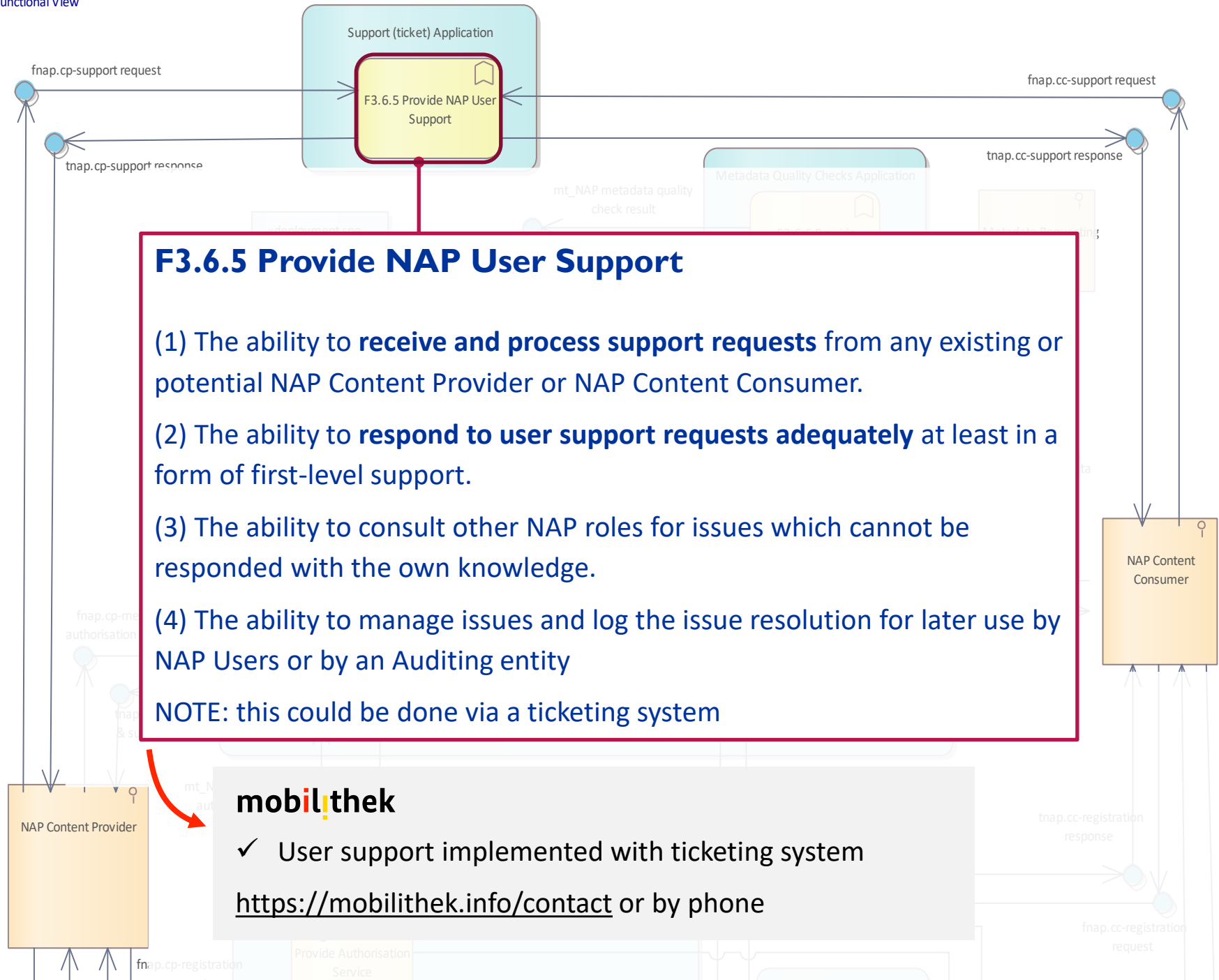
It contains outputs to the Metadata Requesting System that have been created from data objects provided by functionality in the Manage Traffic Functional Area that are items of NAP Metadata which have been retrieved from the store of NAP Metadata following a previous request. Data are formatted as DCAT-AP records **compliant with mobilityDCAT-AP**.

Room for harmonization in order to reach **interoperability** between NAP and any external system

→ Specifications in the Communication View (ongoing work)

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 Version: 7.0.7
 Author: P. Bureš

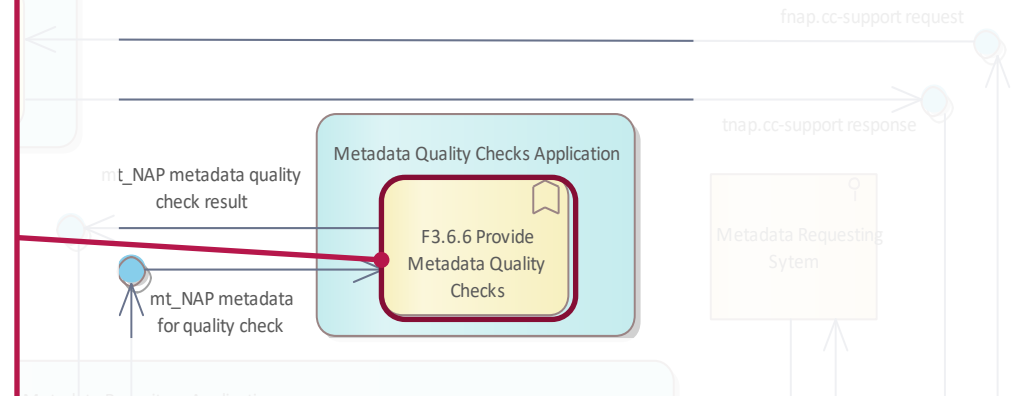




F3.6.6 Provide Metadata Quality Checks

This function shall be capable of providing the following facilities:

- (1) The ability to **perform metadata quality checks** based on pre specified rules and procedures (including appropriate time frequencies). The checks follow the MQA and InQMS methodology, at minimum it is an **availability of the urls** provided in metadata.
- (2) The ability to retrieve data to be checked from the NAP Metadata store.
- (3) The ability to disseminate and store the outcomes of data quality checks to the NAP Metadata store.
- (4) Ability to perform the checks based on metadata events (data insert, data update) in the NAP Metadata store



3.1.17 [MDP-511] Validate metadata

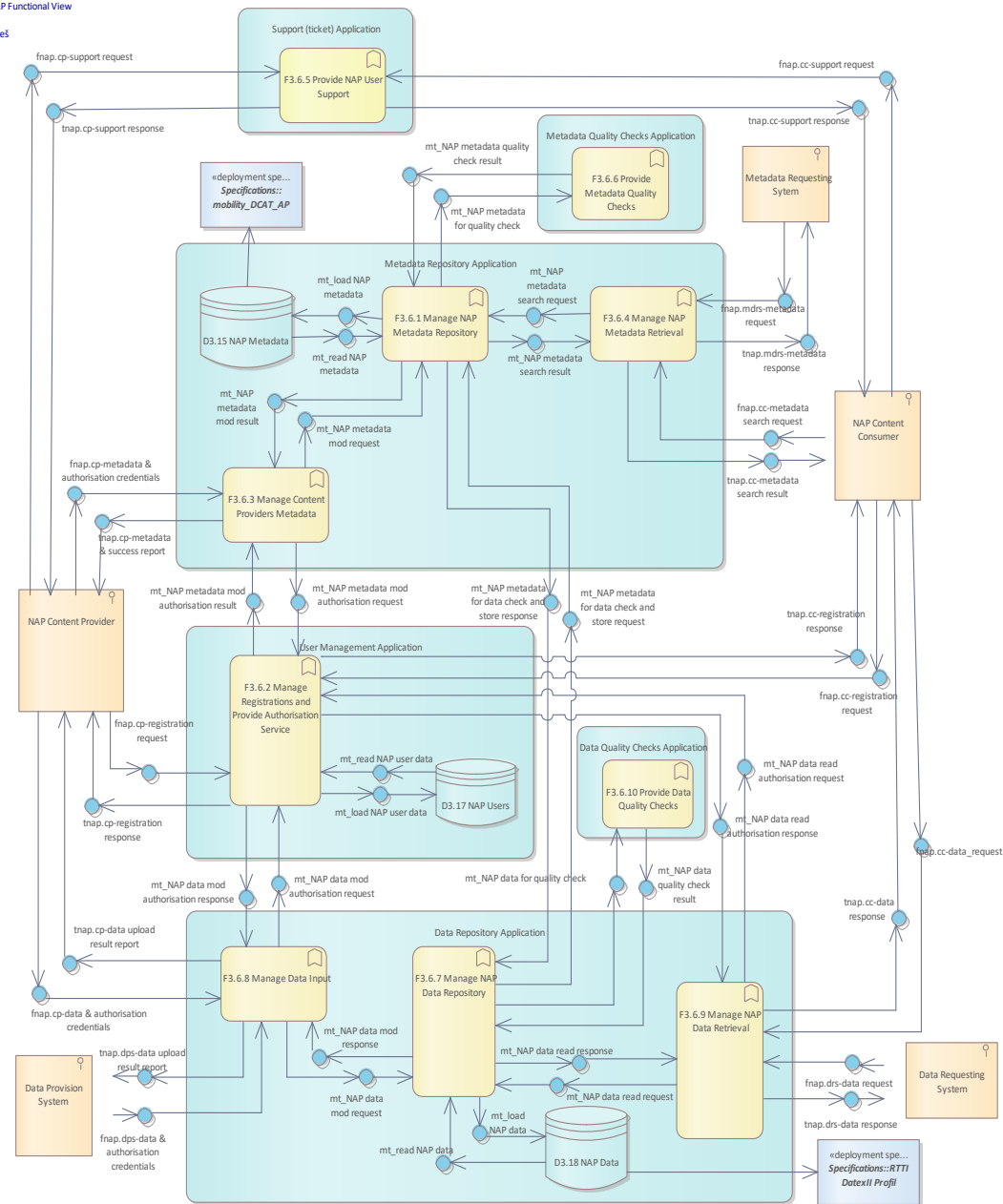
Als Datenbereitsteller erwarte ich, dass bei der Erfassung oder Änderung von Metadaten (über die GUI) automatische Mechanismen zur Datenqualitätsprüfung (z.B. Gültigkeit von URLs) angewendet werden und erkannte Einschränkungen der Metadatenqualität zu einem Warnhinweis oder zur Zurückweisung der Dateneingabe führen.

Bei der Erfassung oder Änderung von Metadaten validiert das System neu erfasste oder geänderte Metadaten gegen das für die Metadaten definierte Metadatenmodell und prüft die Erreichbarkeit von URLs. Die direkte Überprüfung zur Vermeidung von Fehlern bei der Erfassung oder Aktualisierung von Metadaten über das Portal ist Gegenstand der Features [\[MDP-510\] Create metadata via GUI](#) und [\[MDP-512\] Update metadata via GUI](#).

„Validate Metadata“ behandelt die allgemein auszuführenden Prüfungen bei Speichern eines Metadatenatzes, ausgelöst durch die GUI, aber auch für geharvestete Metadatenätze. Es werden folgende Prüfungen durchgeführt:

- Prüfung der erfassten Metadaten auf durch das Metadatenmodell (fachliches Informationsmodell, Kapitel [3.4](#)) vorgegebene Pflichtfelder. Ein Fehler führt dazu, dass der Datensatz nicht gespeichert und eine entsprechende Fehlermeldung auf dem Portal angezeigt wird.
- Prüfung der erfassten Metadaten auf durch das Metadatenmodell vorgegebenen Typen. Ein Fehler führt dazu, dass der Datensatz nicht gespeichert und eine entsprechende Fehlermeldung auf dem Portal angezeigt wird.
- Prüfung der erfassten URLs auf Erreichbarkeit. Eine nicht erreichbare URL führt zu einer Warnmeldung auf dem Portal, erlaubt aber, dass der Datensatz gespeichert werden kann.

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Package: 02 NAP Functional View
Version: 7.0.7
Author: P. Bureš



F3.6.2 Manage Registrations and Provide Authorisation Service

- (1) The ability to **receive and process a request from an entity** that wants to become new NAP User.
- (2) The ability to check the new NAP User in (1) above to include **electronic identification, verification** that the requesting entity exists based on information included in the request and **agree with terms of the NAP User** (different for NAP Content Provider and NAP Content Consumer)
- (3) The ability to **load information about the entity** submitting the request in (1) above **into the NAP Users data store**, if the identification, verification, and acceptance in (2) above is successful.
- (4) The ability to **provide authorisation credentials** to the requesting entity.
- (5) The ability to **send a rejection notice** (including the reason for rejection) to the entity that submitted the request in (1) above if the identification, verification, and acceptance in (2) and (3) above was not successful.
- (6) The ability to **check the authorisation of an entity** which sends its credentials to the NAP functions and to response to those functions if the authorisation check has been successful.
- (7) .. (14)

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References to specification sheet:

- | | |
|-------|---|
| 3.1.2 | [MDP-521] User Management (User Support) |
| 3.1.8 | [MDP-556] Authenticate and authorize API user |

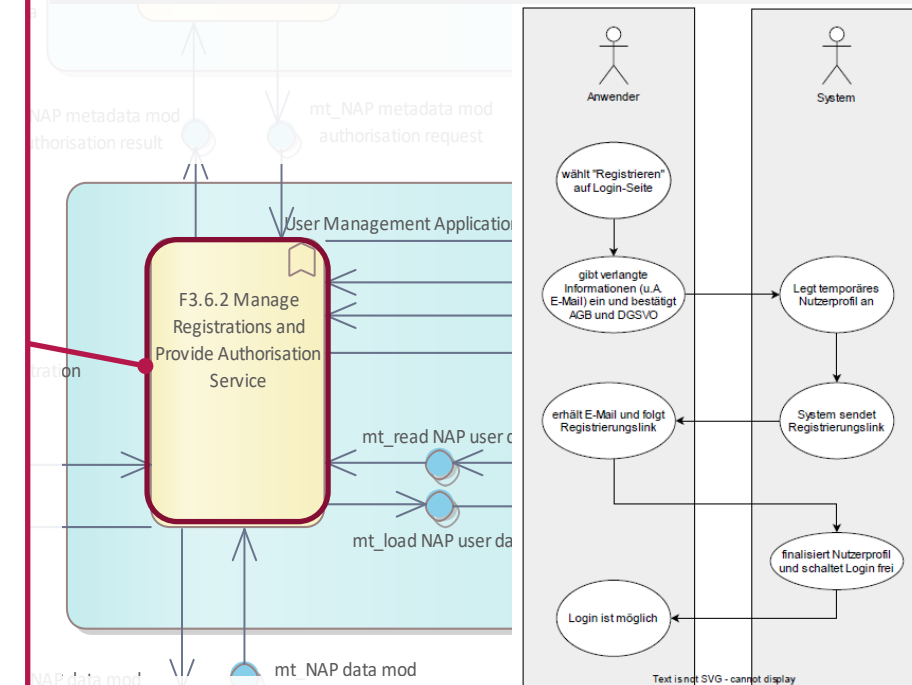
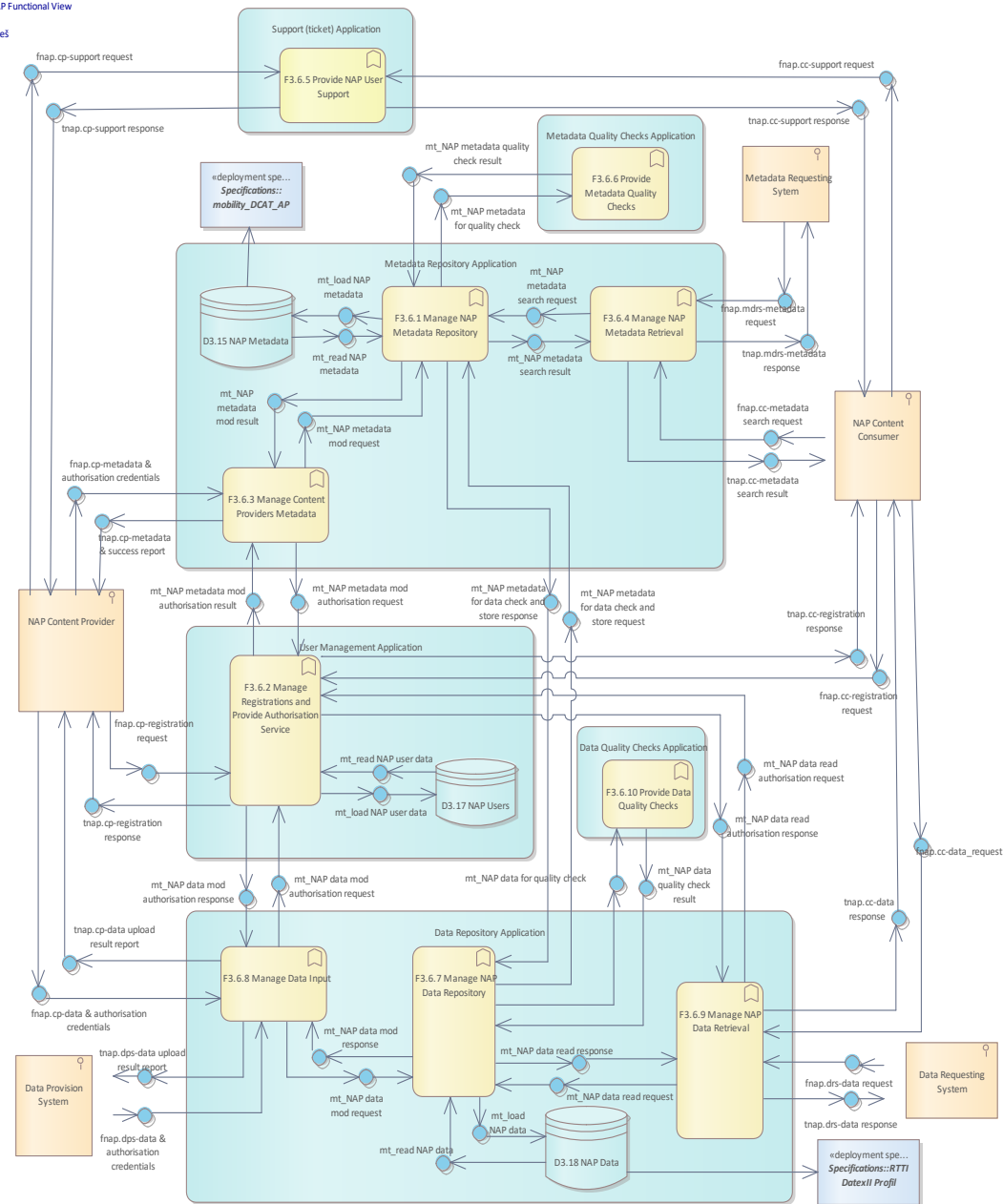
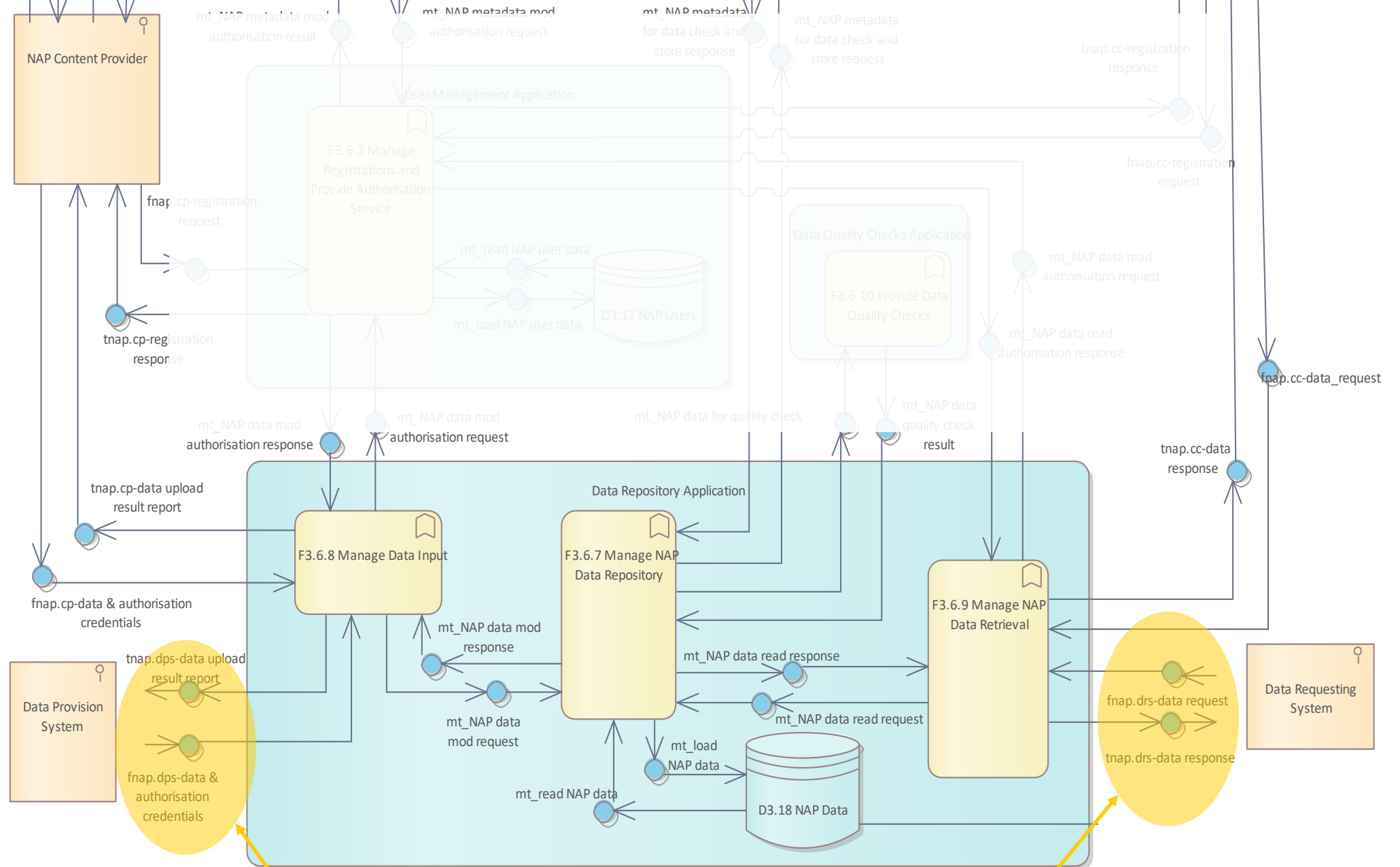


Abbildung 2: Selbstregistrierung von Anwendern

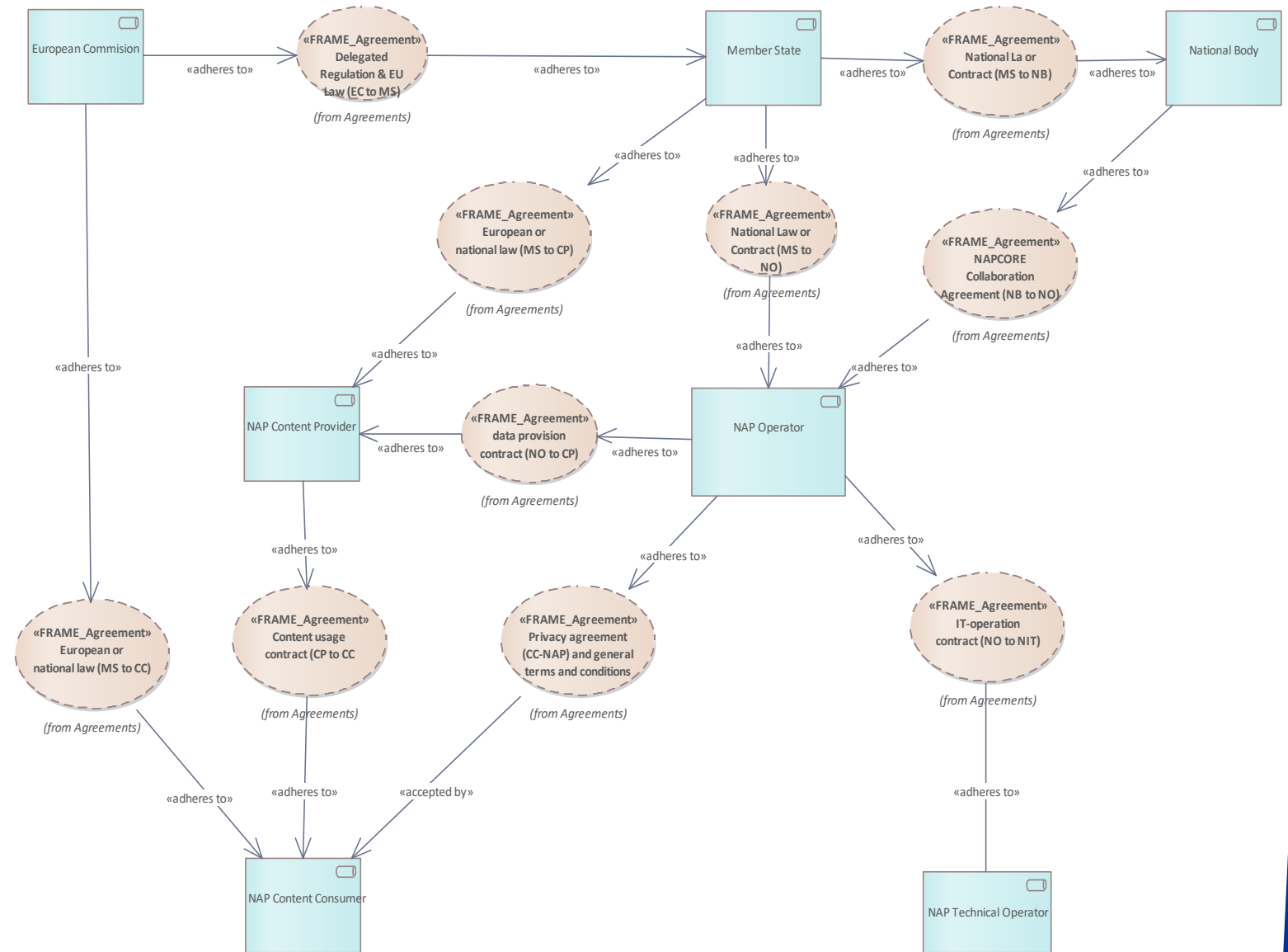
Name: 02 NAP Functional View - Data Platform
 Package: 02 NAP Functional View
 Version: 7.0.7
 Author: P. Bureš





Opportunities for technical interoperability

Organizational View



Privacy agreement (CC-NAP) and general terms and conditions

Obligations:

NO to CC:

- To inform about the best effort to publish up-to-date and accurate (meta)data about content providers (CP) and their data at the NAP.
- To reject responsibility for the published data by CPs.
- If subscribed: to notify CC about any outages and, optionally, additions to the NAP. NO must ensure that personal data is not misused, General Data Protection Regulation (GDPR) and to whom can it be disclosed. NO must provide the CC the right to delete the account on the NAP.

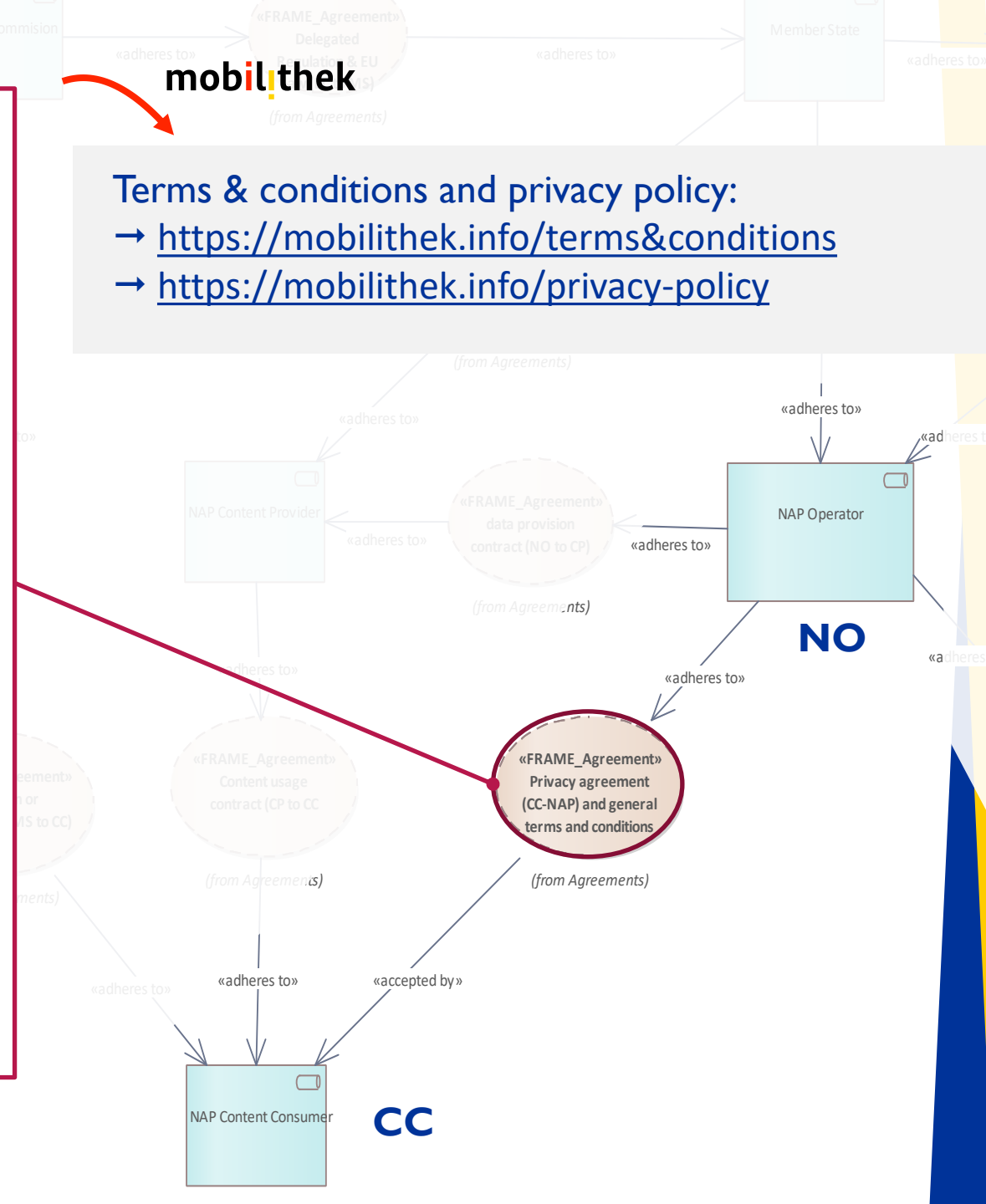
CC to NO:

- To reuse the (meta)data shared by NAP according to the terms and conditions.

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Terms & conditions and privacy policy:

- <https://mobilithek.info/terms&conditions>
- <https://mobilithek.info/privacy-policy>



Content usage contract (CP to CC)

Obligations:

CP to CC:

To provide up-to-date and accurate data with a desired level of quality, in the prescribed format.

CC to CP:

To use the data according to the granted license by the CP (reuse, resell, change, modify).

Offer Details

General Data Access **Terms of Use** Quality Information

Standard Licence

Creative Commons Attribution - Share-Alike (CC-BY-SA)

Instructions for Use

Bei Verwendung der Bilder müssen die Nutzungsbedingu
https://www.mapillary.com/terms?locale=de_DE

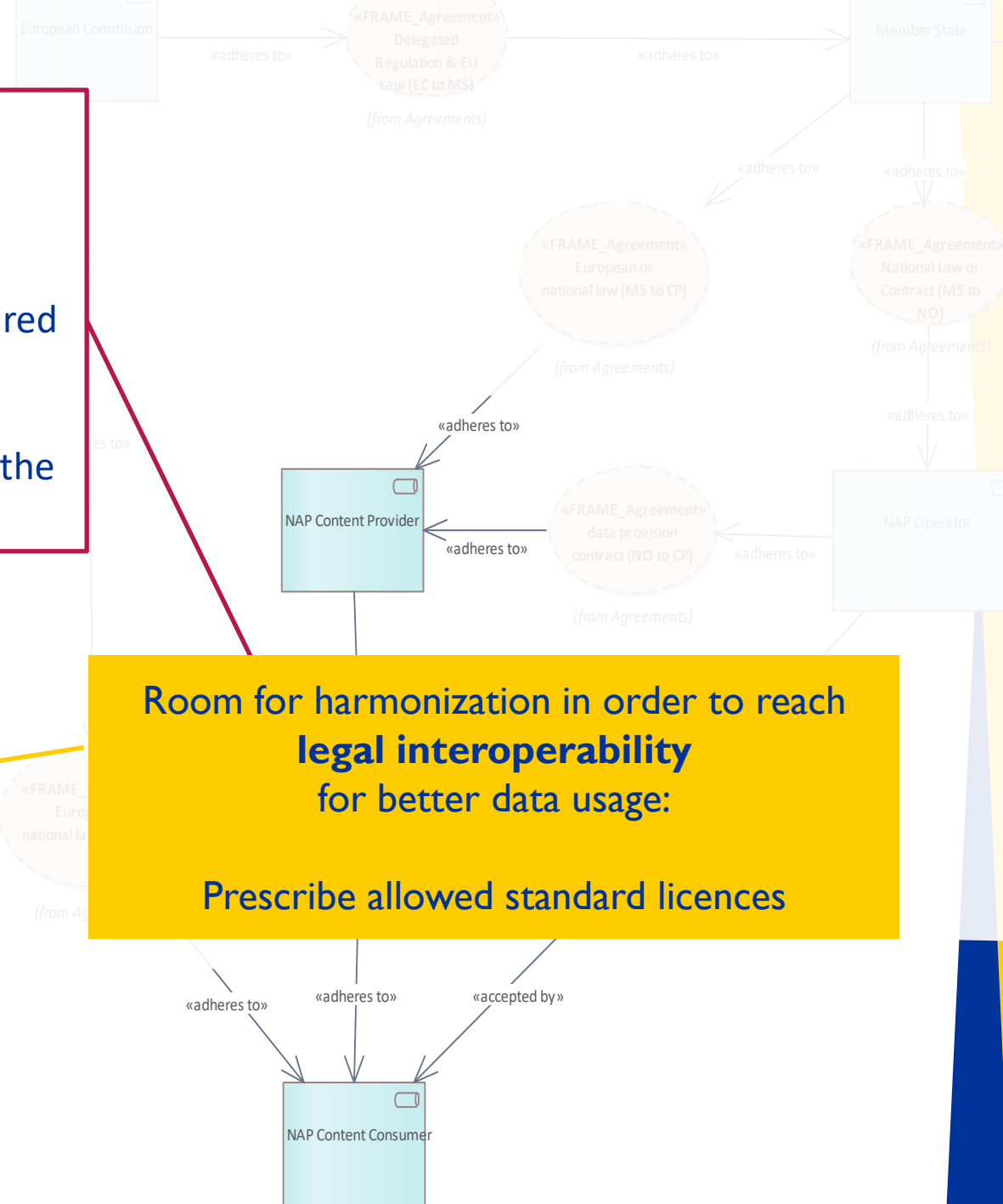
Bei Verwendung des Datensatzes bitte wie folgt zitieren..

✓ Show more

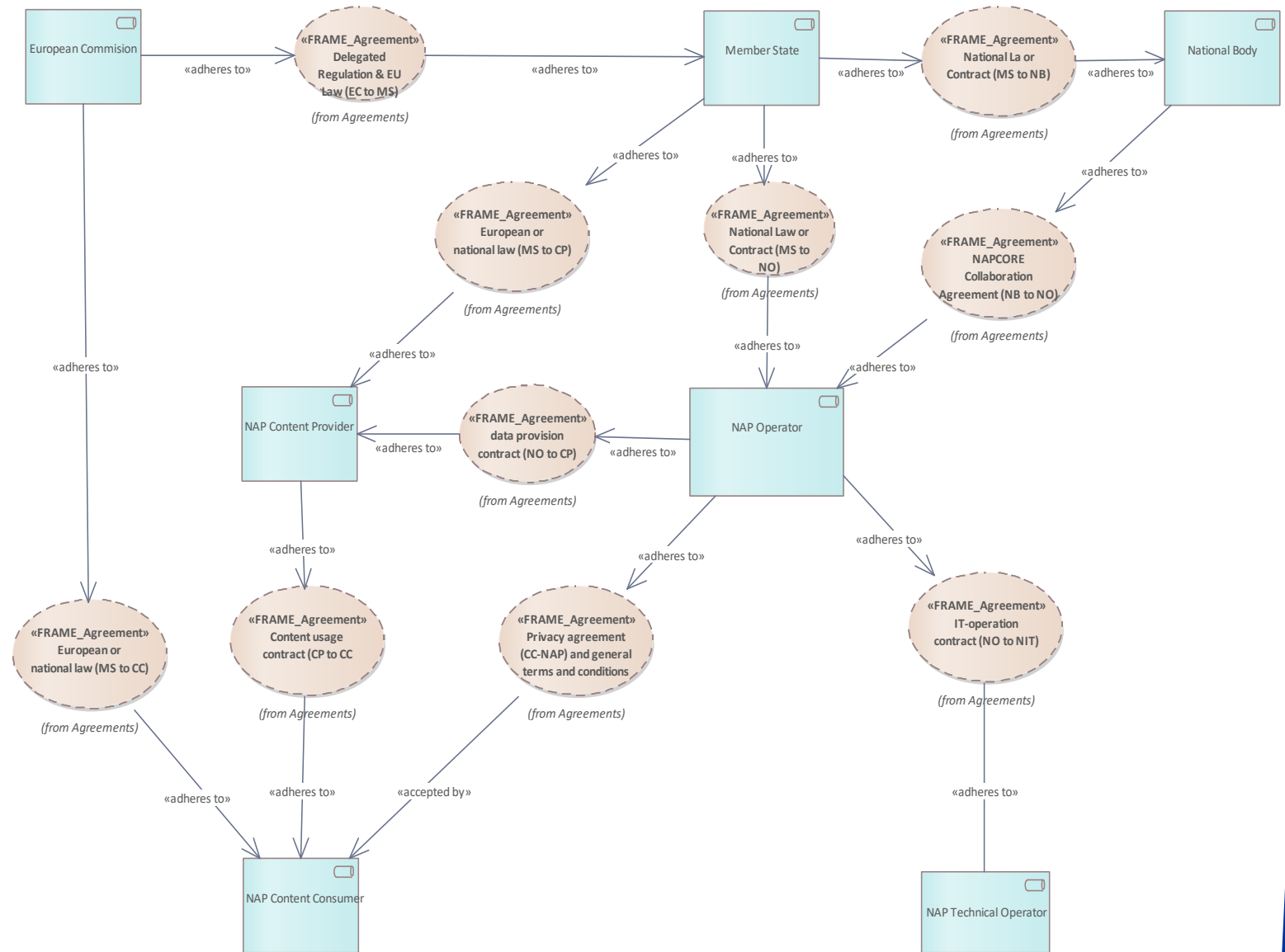
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Room for harmonization in order to reach
legal interoperability
for better data usage:

Prescribe allowed standard licences



Organizational View



Conclusions

- **NRA Functional View** depicts and describes NAP functionalities with relation to external stakeholders



Functionalities largely covered by Mobilithek

- **NRA Organisational View** depicts and describes the need of agreements, contracts or legal certainty between NAP operators and involved stakeholders



Mobilithek covers necessary agreements, facilitates contractual relations for data exchange

- **Interoperability** still needs specifications (+commitment to implement)
 - for technical and semantic interoperability especially in Communications View
 - for organisational and legal interoperability in Organisational View

Thank you!

Federal Highway Research Institute



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Q&A

session

Outlook

THANK YOU!

- Next steps

Interoperability of NAPs - Ongoing/upcoming activities in NAPCORE

Levels of service

Update of the NAP LoS KPI Framework (version 2025)

NAP LoS self-assessment Workshop 2025

Reference Architecture

M2.11 document – “NAP Reference Architecture”

Update and maintenance activities

User support

● Remaining questions?



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