



NAP LoS KPI Framework 2025

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Abbreviations

Abbreviation	Meaning
EC	European Commission
CAT	Core Alignment Team
KPI	Key Performance Indicator
LoS	Level of Service
NAP	National Access Point
NAPCORE	National Access Point Coordination Organisation for Europe
SC, SCOM	Steering Committee
SCS	Steering Committee Support



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1 Introduction

The second working group of the NAPCORE project (WG2 “Interoperability and level of service of NAPs”) aims to define minimum conditions and coordinate the development and evolution of European National Access Points (NAPs) by enhancing the compatibility and interoperability of their features. Task 2.1 focuses on the uniform description of NAP’s Level of Service (LoS).

Milestone 2.1¹ (M2.1) from November 2022 provides a comprehensive context and framework for assessing the LoS of a NAP considering its features. Milestone 2.2² builds upon M2.1 and elaborates on a list of gaps and actions needed towards sufficient LoS and NAP interoperability.

The main outcome of the works carried out under this task is a tool to assess a NAP LoS based on a framework of Key Performance Indicators (KPIs), which are related to the offered NAP interoperability features and services. The “**NAP LoS KPI Framework tool**” (NLKF) is used by NAP operators as a self-assessment survey in periodic (yearly) scoring exercises, started in 2023 and continued in 2024 and 2025.

NLKF provides significant support to NAP harmonisation activities such as:

- Supporting the NAP operators with insights on the current state and gaps on existing and new potential NAP features, that can be added to its roadmap in order to increase performance to a desired level;
- Supporting supervising bodies of European or national regulations and agreements;
- Creating NAP European benchmark reference based on the minimum, average and other statistical scores of all Member states.

The NLKF was developed with a “bottom-up” approach, envisioned as a state of practice in Europe, starting from individual NAP features and related Key Performance Indicators (KPIs). It includes both quantitative and qualitative KPIs and differentiates the provided features depending on the NAP typology operated for one or more Delegated Regulations supplementing the ITS Directive (2010/40/EC). The aggregated results of NAP LoS are expressed quantitatively (Grade of Achievement, GA) or qualitatively (Maturity Levels). The output also includes NAP gaps evaluation using the KPIs.

The methodology principles for the development of NLKF and computations for its use are further explained in **Appendix 1** and **Appendix 2**. The method allowed the development of the NAP LoS self-assessment exercises using an online questionnaire, automatic computation and graphical export of the results, followed by evaluation and discussion within dedicated workshops.

This document, “NAP LoS KPI Framework 2025 v1.2” (NLKF2025), is the updated version of “NAP LoS KPI Framework 2024 v1.0”, incorporating proposed changes from previous years that have been reviewed and approved through the change management process led by NAPCORE Task 2.1 active partners. The results have been processed into the NLKF 2025, which served as a reference for the 2025 NAP LoS self-assessment exercise.

Section 2 provides a concise overview of the framework’s development steps. In section 3, the document delves into the core aspects, addressing the definition of feature categories and offering a

¹

https://napcore.eu/documents/Milestones/M2.1_Typology%20of%20NAPs%20based%20on%20the%20description%20of%20levels%20of%20service%20and%20assessment%20of%20associated%20costs%20and%20benefits_final.pdf

² https://napcore.eu/wp-content/uploads/2024/09/M2.2_Overview-of-gaps-and-actions-needed-2.0.pdf



actual description of each KPI. Section 4 explains the NAP LoS Self-assessment Workshops and explores the main results obtained. Finally, section 5 suggests governance principles for the tool.



2 NLKF continuous development process

The current work builds on the continuous development work of the first release of NLKF, where, as a result, the KPI framework has been continually updated to meet the current requirements and comments from all key players, particularly the development work in NAPCORE WG2. This meant that in preparation for the 2025 round of NAP LoS self-assessment, several inputs were collected, and the latest version of the definitions, values and thresholds for each KPI were subsequently modified. The principle of calculating output values (GA, LoS and gaps evaluation) remains unchanged.

2.1 Development activities until 2025

NLKF is based on previous content and development, including NAPCORE M2.1 and M2.2 documents and the subsequent 2023 and 2024 NAP LoS self-assessment workshops.

Methodology:

- NLKF general approach (M2.1, Chap. 1, M2.2, Chap. 1);
- NAP typology: Metadata directory and Data platform (M2.1, Chap. 3.2, M2.2, Chap. 2.3);
- NAP feature categories (M2.1, Chap. 2);
- NAP KPIs definitions and values (M2.1, Chap. 3.3);
- GA and LoS computation (M2.1, Chap. 3.1);
- Categories and KPI weighting (M2.1, Chap. 3.4);
- Gaps definitions (M2.2, Chap. 2);
- Gaps evaluation principles, metrics and criteria (M2.2, Chap. 2.3);
- Computation environment and results graphical export (M2.1, Chap. 4 and 5).

Development and tuning:

- Initial NAP features setting and survey in 2022 (M2.1, Chap. 2);
- KPIs tuning in 2022 (M2.1, Chap. 3.5 and 5);
- KPIs tuning in 2023 for the workshop (2023 workshop questionnaire and presentation);
- KPIs' limits tuning in 2023 after the workshop, for gaps evaluation (M2.2, Chap. 2.3);
- Update of some terms and definitions in 2023 (M2.2);
- KPIs' update of definitions and limits tuning in 2024 ("NAP LoS KPI Framework 2024 v1.0").

Results:

- GA and LoS results from 2023 (M2.2, Chap. 2.2 + 2023 workshop presentations);
- Gaps evaluation results from 2023 (M2.2, Chap. 2.4);
- GA and LoS results from 2024 ("NAP LoS KPI Framework 2024 v1.0").

Recommendations:

- NLKF use cases (M2.1, Chap. 6);
- NLKF governance principles design (M2.1, Chap. 7);
- Possible actions to close the gaps (M2.2, Chap. 2.5);
- Recommendations towards an interoperable NAP landscape in Europe (M2.2, Chap. 3);



- Concluding remarks for further development (M2.2, Chap. 4).

2.2 Development process in 2024-25

The sources (proposals for changes) for the NLKF framework update in 2025 are the following:

- Remarks collected during the 2024 NAP LoS Self Assessment questionnaire, typically from the NAP operators (before the 2024 workshop)
- Remarks from the 2024 NAP LoS workshop in Utrecht, typically from the NAP operators;
- Remarks from Task 2.3 (NAP reference architecture);
- Remarks from Task 2.4 (NAPCORE Interoperability Demonstrators).

Many of the comments received within the Questionnaire 2025 have been incorporated (see Chapters 2.3 and 3), while some are selected for further updating for 2026 in NAPCORE-X (see Appendix 3 – NAP KPI framework proposals for future changes).

The above-mentioned input values were processed by classifying the stimulus (type of the KPI change) and response (type of the action) into the following categories.

Type of KPI change:

- **KL:** change of KPI limits and/or weights = e.g. the acceptable minimum LOS shall be higher or lower than current value
- **Te:** Technical (values change) = the number and also the content of the LOS values shall be different (deleted, added, revised with functional difference)
- **Ed:** editorial = textual changes clarifying, making description more explicit/generic
- **New:** New (or combine) KPI proposed including proposed category, description, parameters, possible values, weighting, etc.

Type of action:

1. **“Easy changes”:** Changes that don’t require discussion like editorial; Add “easy change” and “proposed change”;
2. **“Changes for discussion/decision”:** New KPI; New parameter; New values; New limits; Induced change based on suggestions;
3. **“Further investigation”:** Search for a tool, further consultation of other stakeholders (NAPCORE, external, etc).

2.3 Changes performed to the KPI framework since 2024

The resulting changes implemented in the KPI framework were made to the following elements:

- Extended definition of KPI limit values to support full computation (see Chapter 3.3)
- Feature categories:
 - Update according to the replacement of the current and new KPIs.
- Individual KPIs definitions:
 - There were changes in the definitions of several KPIs. Those are briefly explained in the section 3 (subchapters 3.4 to 3.10).



2.4 Proposals for future changes

The KPI improvement suggestions collected from the 2025 NAP LoS self-assessment questionnaire and during the yearly workshop in Porto are recorded, reviewed and categorised. In **Appendix 3**, a list of the “changes to be addressed” is presented. This will be the basis for further development in 2025-26 up to an NLKF 2026 release.

3 NAP KPI Framework 2025

3.1 NAP types

The following two types of NAP are considered in the KPI framework 2025:

Metadata directory

This is the NAP providing metadata (description of datasets and data sources in a predefined way) to an end user or data service provider. This type of NAP is not involved in the data exchange process between data providers and data consumers.

Metadata directory contains descriptions of the data and services important for their identification, assessment, and subscription by consumer, i.e., metadata. It provides facilities to authenticate data providers and functionality to insert metadata records. The NAP provides search and discovery services of the hosted records to end users and via machine-readable content to other portals.

Data platform

This is the NAP providing metadata and real data or data services to data user or data services through the NAP (via download, API or other data transfer channels including data usage contracts).

Data platform contains descriptions of the data and services important for their identification, assessment, and subscription by consumer, i.e., metadata, together with the data and/or services themselves. It provides facilities to authenticate data provider and optionally, data consumer and functionality to insert data and metadata records to NAP internal database. The NAP provides search and discovery services of the hosted records to end users and via machine-readable content to other portals and distribution interfaces for data dissemination. The NAP is an intermediary between data provider and consumer; the data however remain in the ownership of the data provider.

The reason for distinguishing NAP types is partial difference in the assessment method. It is true that some KPI indicators that relate to working with data relate to the NAP type “Data Platform” only and are irrelevant for the evaluation of “Metadata Directory” NAP type. Also, the weight (importance) of KPI indicators used in computations depends on the type of NAP and is different if the NAP works with data or metadata only. Also for the purpose of computation, if a NAP has both “Metadata directory” and “Data platform” functions, the “Data platform” is considered as it also supports metadata features.

3.2 Description of NAP features categories

The National Access Points should fulfil the requirements set by the Delegated Regulations supplementing the ITS Directive (2010/40/EU). Therefore, several NAPs were implemented in Member States in different forms and with different functionalities. A major prerequisite for defining a methodology assessing NAP LoS is to gain a deep understanding of the common features of NAPs. We base this understanding in the formulation of a list of relevant questions to be asked to NAP operator. The elements of this question list are mainly based on the list of NAP common features discussed and briefly presented in NAPCORE M2.1 Section 2.2. We have also included additional aspects considering



available literature evidence and findings from other NAPCORE working groups. The elements of this question list are grouped into seven feature categories/subsets, titled as follows:

Feature categories
Access
?
Communication
?
Data Discovery
?
Update and Maintenance
?
Dataset information
?
Interoperability
?
Data Exchange and Operational Policy

Figure 1 - List of feature categories

The following sections provide an explanation of NAP features assumed in each of the above categories/subsets.

3.2.1 Access

The first feature of this subset involves the **public availability of NAPs over the web**, enabling its direct use by all interested users without any human intervention. By providing the weblink, each user gains access to the NAP immediately without the need of further authentication processes. This topic also includes availability evaluation.

Another important feature of this subset involves the **NAP compliance to web design standards** and best practices. This refers to concepts, such as simplicity, visual hierarchy, navigability, consistency, responsivity, accessibility, conventionality, credibility, and user-centricity. In this respect, important properties of NAPs have been deemed: the compatibility with web browsers, responsiveness, the easiness of getting access to NAP publications and metadata of data resources, the hierarchical arrangement of NAP contents, the existence of functionalities easing navigation, as well as the homogeneity of NAP contents (e.g., control functionalities are located in the same position). The **inclusion of the English language** apart from the national one is the next important feature of NAPs. Providing the NAP services in English extends the accessibility of the NAPs considering that ITS service providers, who can be addressed as the main data consumers of NAPs, may originate from different European countries.

NAPs should also **follow the EU data protection policies and security standards** to safeguard the included information and stored data (paying increased attention to personal and sensitive data). This topic also includes GDPR and applications for the security of downloads and uploads. Another feature is the requirement for the **data publishers to be registered** to add their datasets. This requirement improves the security of the NAPs, facilitates the authentication of data providers, and provides enhanced control over their activity.

There is also a need to assess if **data consumers need to be registered** to have full access to all features of a NAP. This requirement facilitates the authentication of data consumers, the controlled provision



of access to certain resources. and the monitoring of their activity (which may be useful for statistical analysis of the content of NAPs). In addition, through this requirement, data consumers can customize the NAP's user experience. It is important to note that this requirement should not necessarily be addressed as mandatory, given that the purpose of several NAPs across Europe may be the sharing/exchange of open data. In this respect, the NAP may have been designed utilizing data management systems complying with the open data principles. In any case, the registration of data consumers should be simple and straightforward, making security and privacy policies clear. Moreover, in line with this principle, the provision of access to an open NAP publication might be achievable without registration prerequisites.

The next feature classified in the “access” subset involves the **existence of Application Programming Interfaces (APIs)** facilitating automated access and exchange of data. It is considered as an appropriate feature given that it promotes an important property of NAPs, namely machine-to-machine communication, and information exchange. Indeed, through APIs, data consumers can receive dynamic data and information when they become available from their source without human intervention, thus enabling the immediate circulation of information. This feature also covers the ability of NAP to inform about data or metadata modifications (without necessity to download and investigate the data), and also some data transfer optimization features.

3.2.2 Communication

The second subset concerns communication features of NAPs. This implies all possible ways to **reach out to potential NAP users**, to communicate with as well as to **support new and existing NAP users** and to **monitor the usage of NAPs**.

NAPs should provide **support to data providers and data consumers** with information material and FAQ available via the website, but also direct contact via email, (web) calls, chat or user forum can deliver additional benefits. Through this feature many misunderstandings can be avoided during, for instance, the process of uploading data and metadata.

Monitoring which (end-user) services really use mobility data from the NAPs is very desirable. NAPs are encouraged to set any process in place to get an understanding how the NAPs give benefit or also to register potential blockers for the usage of NAP data.

The **promotion of NAPs** is another important feature. To ensure that NAPs will play a key, impactful, and sustainable role within the ecosystem of Intelligent Transport Systems and the corresponding value chains, they should strive to attract even more data providers and data consumers. In this respect, the promotion of NAPs to several events and initiatives at both a national and international level is considered crucial.

Moreover, the **facilitation of direct communication between data consumers and data providers** is deemed an important feature of NAPs, given that data consumers can efficiently resolve any open issues in collaboration with data providers without the intervention of the NAP operator. This feature also enhances trust between publishers and consumers by showing to the consumers that data publishers care about their needs.

It is also important that **NAP itself can provide mass notifications** to its users (including both data providers and data consumers) about changes in its content, functionalities, operational procedures, and/or data exchange policies. By that means, the users get directly aware and account for these changes.

It is also worth mentioning that NAPs should be **monitored and evaluated** in a periodical basis. This includes several dimensions, such as the usage of data (e.g., downloads, page views, re-use), system



performance (e.g., downtime and consequences for other systems), and feedback received by data consumer and providers on the efficient (or not) operation of the platform. Further to the above, it is deemed important for NAP operators to monitor and evaluate the impact of their platform to the development of services and applications by calculating metrics and gathering feedback.

3.2.3 Data discovery

The feature category “Data discovery” assesses the possibilities of the NAP, how data can be searched, filtered and displayed so that data consumers can easily find suitable data for their needs.

The first feature is about free-text search options, i.e. what can be searched with free text and how are search requests processed.

Another possibility to find suitable data is filtering (either all available data offers at the NAP or the results from a free-text search). So, the second feature asks according to which properties the displayed datasets can be filtered.

Another important, not yet mandatory, feature is the **machine readability of metadata enabled** through exportability using certain formats (e.g., XML and RDF DCAT-AP streams). In principle, it should be bear in mind that metadata should facilitate the discovery of data by both human and machines.

Finally, the last feature included in that subset, which can also be addressed as non-mandatory, constitutes **the support for map-based search of datasets**. Web maps can provide a more advanced way of searching, allowing NAP users to search at national, regional and local level, for data elements and resources.

3.2.4 Maintenance and update

The "Update and Maintenance" category encompasses the key features that ensure the National Access Points (NAPs) remain functional, reliable, and reflective of evolving technological and stakeholder needs. The indicators within this category assess the sustainability and operational resilience of a NAP by evaluating whether processes are in place to keep both the system and the content up to date.

This subset addresses both the technical infrastructure and data governance aspects of NAP maintenance. On the infrastructure side, it captures the presence of dedicated **IT services**, continuity planning, and monitoring mechanisms that ensure the uninterrupted operation of NAP platforms. This includes responsibilities for hardware and software upkeep, backup procedures, and funding provisions for long-term viability.

On the content side, the category considers how frequently and effectively NAPs monitor and maintain the accessibility and accuracy of the data and metadata they host. This includes the **regular checking of data access links, updating metadata** to reflect current standards or requirements, and **verifying the quality of the data content** itself. A special emphasis is placed on having clear procedures, regardless of the update frequency, to guarantee the ongoing reliability and usability of the information available to users.

Although some elements within this category may appear operational in nature, their presence and consistency directly influence the trustworthiness and usability of a NAP. Without adequate maintenance procedures and quality control, even well-structured datasets or advanced visualisation capabilities can become obsolete or misleading over time.



3.2.5 Dataset Information

The features included in this subset revolve around the extent to which **datasets are described** to a satisfactory extent to ensure that data consumers can easily understand and assess whether a dataset is within their interests.

This subset also includes the **classification/encoding of NAP datasets** according to standard/controlled vocabularies or dictionaries (e.g., DCAT-AP or formal terminology provided by the Delegated Regulations supplementing the ITS Directive) to reduce their ambiguity and promote machine understandability.

Moreover, “dataset information” comprises **visualization functionalities of NAPs**. Visualisation allows users to gain insight into the content of the (meta)data in a quick manner. In that way, and even though visualisation cannot be addressed as a NAP’s requirement, it draws the data consumers’ attention to datasets of their interest.

Additionally, the features included in this subset aim to ensure that NAPS endorse the provision of high-quality data that complies with the requirements set by the Delegated Acts of the ITS Directive. In this respect, it would be beneficial if NAPS enable data providers to indicate the quality of provided data or, ideally, **set quality requirements**.

3.2.6 Interoperability

Features included under the interoperability subset aim to ensure that NAPs operate in a compliant/common manner and can efficiently communicate with each other and with other portals, as well as exchange information. An example of this feature constitutes the adoption of the **MobilityDCAT-AP specification**, ensuring a common approach towards the publication of metadata. Another example constitutes the **ability of NAPs to harvest and index datasets** from other portals.

3.2.7 Data exchange and operational policy

The features included in the data exchange and operational policy subset, firstly, aim to ensure that NAPs provide **clear descriptions of the terms and conditions** for data re-use and of their **operational procedures**. Terms and conditions for data re-use set out the ways in which data hosted in/accommodated through NAPs can and cannot be re-used. The clarification of the terms and conditions for data re-use, despite not being directly the responsibility of NAP operators, is deemed important because by that means disputes between data providers and consumers can be avoided and the estimation of the impact of data hosted in/provided through NAPs can be facilitated (e.g., through attribution obligations). In this respect, NAPs should make the best effort to facilitate the clarification of these terms and conditions by providing, for instance, data providers with prespecified licenses to be selected during the publication of a new dataset. On the other hand, the clarification of the operational procedures of a NAP eases the understanding of the role and responsibilities of all actors involved in the NAP ecosystem (i.e., NAP operator, data providers, data consumers). This can be supported, for instance, by the inclusion in the NAP of a brief set of instructions, providing guidelines and explanations on: a) the user types and their access rights, b) how a user can be registered and authenticated, c) how datasets can be published, and d) how often should datasets be updated.

Moreover, it would be beneficial if NAPs **promote and monitor the provision of self-declarations** on behalf of data providers, thus facilitating the activities of Nominated Bodies relating to the declaration of compliance of datasets published in the NAPs.

Finally, a desirable property of the NAPs revolves around the consolidated **coverage of data types included in all Delegated Regulations** supplementing the ITS Directive. Through this property, NAPs



are understood as a single point of access to data resources required to support the uptake of Intelligent Transport System services, as well as of newer concepts, such as Mobility as a Service and Urban Vehicle Access Regulations.

3.3 KPI common description

The scope of the current section is to present the content and structure of the proposed KPI framework by providing the definition of the adopted KPIs, the range of their possible values, and the adopted thresholds for assessing the level of service of a NAP.

Considering that the elements of the proposed KPI framework are a product of the analysis of the outcomes of the initial NAP common features survey, updated with changes described in section 3.

KPIs are grouped into the feature categories and described in the following chapter using the template table below:

KPI index	KPI name	Definition by question(s)	Values definition	KPI Limits	KPI Weights
KPI index <i>i,j</i>	KPI name	KPI related question	0: No 1: Yes	WORST=0 REQ=1 ACC=1 BEST=1	WMD = 0.93 WDP = 0.96

Table 1 - KPI definition template table

- **KPI index *i,j*** (where "*i*" is a Feature category)
- **KPI name**
- **KPI related question** in the self-assessment questionnaire which defines the KPI itself
- **Values definition**, including the possible answers
- **KPI limits**: specific KPI values (thresholds) are marked with the following classification:
 - **WORST_{i,j}** = Worst possible limit value for the computation, i.e., any possibly worse value will be considered as this value;
 - **REQ_{i,j}** = Required limit value for contribution to the Grade of Achievement for NAP LoS evaluation (questionnaire results), i.e., $M_{i,j} = 0$ for worse values (usage explained in Appendix 2, "Grade of Achievement" part);
 - **ACC_{i,j}** = Minimum acceptable value for interoperability – acceptable limit value for NAP improvements (gaps evaluation), i.e., worse values indicate a gap (usage explained in Appendix 3, "Gaps evaluation" part);
 - **BEST_{i,j}** = Best possible limit value for the computation (BEST_{i,j}), i.e., any possibly better value will be considered as this value.
- **KPI weights**:
 - **WMD_{i,j}** = Weight value for Metadata directory ("N/A" means no KPI relevancy for Metadata directory);
 - **WDP_{i,j}** = Weight value for Data platform.

These **thresholds (KPI limits)** are determined by NAPCORE expert groups among the active participants of WG2, also taking also into consideration the results of the NAP surveys. The content and structure of the KPI framework is presented separately for each category in the following Tables.

The **weights** of individual KPIs, as well as the weights of Feature categories, used in the calculations in, were initially established by NAPCORE Task 2.1 active partners by evaluating the importance of Feature categories and separate KPIs (see **Appendix 1** and **Appendix 2**).

These KPIs, weights and limits/thresholds can be periodically updated in order to timely capture new insights and trends (see the **NLKF tuning options** in **Appendix 2**, Note 8). **Appendix 2** describes the



NLKF methodology – how to reach quantitative and qualitative outputs for NAP assessment using KPIs, i.e., Grade of Achievement and Maturity Levels computation, and also NAP gaps evaluation.

Feature Category	KPI list
Access	1.1 Online availability
	1.2 Compatibility with web browsers
	1.3 Web performance – homepage load time
	1.4 Responsiveness
	1.5 Web performance – simplicity / usability
	1.6 -
	1.7 Web performance – consistency and navigability
	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 input of metadata or data to the NAP
	1.13 Metadata access restrictions
	1.14 Authentication and security mechanisms for data upload
	1.15 Authentication and security mechanisms for data download
	1.16 Indication of provided data modification
	1.17 Data transfer optimization
	1.18 API usage for data transfer
	1.19 Web performance – (meta)data load time
	1.20 -
	1.21 Metadata about data modification
Communication	2.1 Support to users to register or add data/metadata
	2.2 Related services monitoring process
	2.3 -
	2.4 NAP promotion channels
	2.5 -
	2.6 Contact details
	2.7 Mass notifications – data providers
	2.8 Mass notifications – data consumers
	2.9 Monitoring and evaluation
Data discovery	3.1 Free-text search
	3.2 Filtering options
	3.3 Provision of machine-readable metadata
	3.4 Map-based search
Update and maintenance	4.1 IT services
	4.2 Link checking frequency
	4.3 -
	4.4 Metadata maintenance frequency
	4.5 Data (content) maintenance
Dataset information	5.1 Documentation & description of datasets
	5.2 Classification of datasets
	5.3 Quality indicators for datasets
	5.4 Data visualization
	5.5 Metadata visualization
Interoperability	6.1 Metadata specification
	6.2 Harvesting functionalities



Data Exchange and Operational Policy	7.1	Terms and conditions for reuse of metadata and NAP website content
	7.2	Terms and conditions for data reuse from data provider
	7.3	Operational procedure information
	7.4	Dataset compliance assessment indicator
	7.5	Compliance assessment support by NAP
	7.6	Association of published datasets with Delegated Regulations
	7.7	-

Figure 2 - List of KPI per feature category

3.4 Access KPIs

1.1 “On-line availability” KPI assesses whether the NAP platform is online or not. For the online case, the KPI assesses if there is some automated check used, and an example of such a tool is provided in the Note. The REQ value is set to 1 to reflect that the online availability of a NAP constitutes a fundamental prerequisite. The ACC value is set to 2, i.e., there is a gap if the availability is not checked using some automated service.

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits	Weight $W_{i,j}^{**}$
1.1	Online availability	Is the NAP available through the web? If yes, are you checking the webserver availability? <i>Note: The https://www.downtnotifier.com service checks any server availability free for every 10 minutes, or under paid versions for every minute or every 20 sec.</i>	0: No 1: Yes, but without automated availability check as defined under the following option. 2: Yes, with automated availability check at least every hour using some external service, such as the example mentioned in the note (please specify the service used in the “Suggestions” box)	0 1 2 2	0.93 0.96

Changes since 2024: Automated check included as new Value 2, a link for such service is included. For further assessment, after more NAPs use some tool, we will ask also for % of availability over time.

1.2 “Compatibility with web browsers” KPI refers to the compatibility of NAP with 4 different most-used web browsers and possibility of periodic compatibility verification. The ACC KPI value is set to 3 indicating that a NAP platform should be operational with at least 3 web browsers (or 2 browsers but with periodic verification), whereas the REQ required KPI value is set to 0 to indicate that NAP is operational with at least one web browser. This KPI is closely related to the previous one, considering that its quantification makes sense only when a NAP is available online.

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits	Weight $W_{i,j}^{**}$
1.2	Compatibility with web browsers	Is the NAP webpage compatible with the last versions of multiple web browsers: Mozilla Firefox, Google Chrome, Microsoft Edge and Apple Safari? <i>Note: You can test the browsers manually if you are not using</i>	0: No (i.e., the webpage is compatible with only one browser) 1: Yes, with the last versions of 2 web browsers mentioned in the question 2: Yes, with the last versions of 3 web browsers mentioned in the question 3: Yes, with the last versions of at least 4 web browsers mentioned in the question	0 0 3 4	0.79 0.82



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits	Weight $W_{i,j}^{**}$
		<i>some service that does it for you.</i>	Value+1: NAP is using some service for periodical compatibility verification (please specify the service in the “Suggestions” box)		

There is a **change since the 2023 workshop** that we removed asking for the operating system (former KPI 1.3), because it does not interfere with NAP accessibility.

Changes since 2024: Now only 4 most-used browsers are to test (5 previously, Opera is not included); we newly ask for usage of verification services. Based on the suggestions, we tried looking for an external service for automatic compatibility tests, but we didn't find anything suitable. It was also suggested to add a requirement for browser versions, but due to the dynamics of developing new versions this was not found to be appropriate.

1.4 “Responsiveness” KPI examines whether a NAP’s web design is adaptable to different devices and screen sizes. There is a tool provided in the Note. There are three possible values that this KPI may take. A value equal to 0 indicates that there is no responsiveness, a value equal to 1 indicates a basic responsiveness (for desktops/laptops), a value equal to 2 indicates that a NAP is responsive to more devices. Both necessary (REQ) and sufficient (ACC) levels of service are associated, in this case, with the basic responsiveness.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits	Weight $W_{i,j}^{**}$
1.4	Responsiveness	Is the NAP web design responsive? <i>Note: You can test your NAP webpage responsiveness using some web-based tool.</i>	0: No responsive web design 1: Responsive web design for different screen sizes on desktops/laptops 2: Responsive web design for different screen sizes and devices incl. mobile phones, tablets and TVs	0 1 1 2	0.61 0.54

Changes since 2024: A tool added with the link. We can distinguish basic and complete responsiveness.

1.3, 1.5, 1.7 and 1.19 “Web performance” KPIs are divided down into four separate sub-KPIs, namely **“Web performance – homepage load time”**, **“Web performance – simplicity/usability”**, **“Web performance – consistency and navigability”** and **“Web performance – (meta)data load time”**. The first one assesses the time response of a NAP’s website by assessing the time in seconds needed to load a homepage). Tools are now added and some recommendations how to use them for this KPI. The result is selected in pre-defined groups of values.

The second one is related to the average number of operations needed to gain access to specific information about a data resource (not necessarily involving the access to data itself). These operations may encompass mouse wheel movements, key presses, or mouse/screen clicks. The minimum required (REQ) and acceptable (ACC) value is set to less-than-or-equal-to 10, whereas the nice-to-have value can be less-than-or-equal-to 5.



The third one is related to the existence of a simple structure and the hierarchical arrangement of a NAP's webpage. A value equal to 0 indicates the absence of a hierarchical arrangement, while a higher value indicates that a hierarchical arrangement exists (up to 6 options can be checked, see the values). This KPI also assesses the consistency of the layout of a NAP's website. The adopted parameters for its assessment revolve around the position of menus during navigation, the utilized colours and fonts throughout the site, the availability of a search box, as well as the availability and position of a logo that links back to the home page. The value of this KPI increases by one when a NAP complies with each of the adopted parameters. It is assumed that a NAP should comply with at least (REQ) two of the adopted parameters to be addressed as exhibiting a minimum level of service (these parameters reflect elementary design principles of any web page/platform). The sufficient (ACC) value is 3.

The last one is related to (meta)data load time. There are similar tools available as in KPI 1.3. Here we focus on the load time of some metadata or data. The evaluation process using those services is defined here. The results are sorted as in KPI 1.3.

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $w_{i,j}^{**}$
1.3	Web performance – homepage load time	What is the NAP homepage average load time in seconds ? Please, measure load time from 3 different European cities other than your country, in daytime (8-16h), and make an arithmetic mean of the results. Use one or both of the following free services: • https://www.uptrends.com/tools/website-speed-test • https://tools.pingdom.com/	0: higher than 4 sec 1: higher than 2 sec, max. 4 sec 2: higher than 1 sec, max. 2 sec 3: higher than 0.5 sec, max. 1 sec 4: max. 0.5 sec	0 0 2 4	0.57 0.57
1.5	Web performance – simplicity / usability	What is the average number of operations (e.g., key presses, mouse wheel movements, mouse/screen clicks) required to get access to metadata (without getting the data itself)? <i>Note 1: The value should be relevant for getting access to “metadata language” or “metadata contact point” (if you are having both, please, use an average).</i> <i>Note 2: The value should be relevant to a skilled user, i.e., who already knows the set-up of the website (where to find the metadata).</i> <i>Note 3: The value refers to unregistered or already logged-in user, if login is a necessary condition for access to metadata (i.e., the logging process is not involved in this parameter).</i>	Value 0 to infinity	20 10 10 0	0.75 0.68
1.7	Web performance – consistency	Does the NAP adhere to principles of web structure, page layout and menu structure?	Initial value 0 and then +1 for each of the following options: You can select multiple options: a. Menus are in the same position	0 2 3 6	0.64 0.64



KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
	and navigability		b. Use of same fonts and colours throughout the site c. Availability of a search box on each page d. Logo links back to the home page e. Existence of a hierarchical arrangement of web subpages f. Existence of a "sitemap" page easing navigation (e.g., a tree structure with links to individual pages)		
1.19	Web performance – (meta)data load time	What is the (meta)data average load time in seconds ? This means loading the datasets information about any random metadata. Please, measure load time from 3 different European cities other than your country, in daytime (8-16h), and make an arithmetic mean of the results. Use preferably one or both of the following free services: • https://www.uptrends.com/tools/website-speed-test • https://tools.pingdom.com/ <i>Note: If the mentioned services are not applicable to your NAP because of the web address structure, you can use the development tool in the web browser (Ctrl+Shift+I in Chrome or F12 in Firefox).</i>	0: higher than 4 sec 1: higher than 2 sec, max. 4 sec 2: higher than 1 sec, max. 2 sec 3: higher than 0.5 sec, max. 1 sec 4: max. 0.5 sec	0 0 2 4	0.57 0.57

There are some **changes since the 2023 workshop**: KPI index change from former 1.19 to free position 1.3, unit change in KPI 1.3 from seconds to milliseconds, the upper KPI 1.3 questionnaire limit replaced with infinity (while the WORST limit remains at 4 sec), KPI 1.5 focus to metadata resources and skilled user, KPI 1.7 also includes navigability (former KPI 1.6) so the BEST value is now at 6 instead of 4; some minor word changes and references in the definitions text.

Changes since 2024: KPI 1.3 divided into 1.3 and 1.19, asking for load time for homepage and (meta)data; using 2 defined free web tools. Non-defined user requests removed from KPI 1.3, now homepage only is here addressed. The (meta)data loading is addressed newly in KPI 1.19. The result is newly selected in pre-defined groups of values (qualitative values instead of quantitative), in both 1.3 and 1.19. There was a suggestion not to consider an exact reaction time – this is covered by the use of qualitative classification classes. Response time unit in 1.3 and 1.19 changed to seconds as it is a standard output from the tools. The task is precise, i.e., how to reach the results. In KPI 1.5, explanation added that login (no matter what) is not included in the evaluation. Values changed a little in KPI 1.7. The search box is sufficient on the main page, not necessary in every page. Explanation added that search means for navigation along the webpage and no data discovery. "Breadcrumbs" explanation added. Parameters definition modified to be applicable to both NAP classes, i.e., not applicable to the data itself but homepage or metadata.



1.8 “Support of commonly used languages” KPI may take four possible values. A value equal to 0 indicates that a NAP supports only the national language. A value equal to 1 indicates that NAP supports English for user interface only. A value of 2 means also names of the datasets can be in English. Value of 3 means that all metadata content can be provided in English by the NAP.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
1.8	Support of commonly used languages	In what level does the NAP support commonly used languages? <i>Note 1: This is relevant to the webpage and also to the metadata/data content.</i> <i>Note 2: “To support some language” means to have appropriate interface and content available in that language version</i> <i>Note 3: This KPI is about the output from the NAP: you also may consider the automatic translation of items depending on selected language, i.e., it is not necessary to have an item in a NAP saved in EN version if the NAP is able to export it in such a EN version if selected by the user</i>	0: Supports national language only, other than EN 1: Supports EN for platform (user interface) only 2: Supports EN for platform (user interface) and names of the datasets 3: Supports EN for platform (user interface) and all metadata content (all text content incl. data description)	0 1 2 3	0.64 0.64

There are some **changes since the 2023 workshop** – a note added about relevancy, value 3 removed, EN only will be preferred. So the BEST value is 2 instead of 3.

Changes since 2024: Correction made – language can be in metadata or data description. Explained that “support” means also to have content in a specific language version. The automatic translation possibility explained. Note 2 and Note 3 added. A question partially updated based on NRA team proposal.

1.9 “Security – Technical” KPI addresses the existence of security features for access (i.e., security certificates). A value equal to 0 points out the absence of any security feature. A value equal to 1 indicates the existence of up-to-date security certificates in specific parts of a NAP’s website, while a value equal to 2 indicates the existence of up-to-date security certificates throughout the website of a NAP. In that case, a minimum level of service is assumed to be exhibited by a NAP when up-to-date SSL certificates cover at least the most critical (in terms of data protection) parts of a NAP’s website.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
1.9	Security – technical	Does the NAP include security certificates (using SSL, resp. HTTPS protocol) to protect interaction with a user?	0: Absence of security certificates 1: Partial existence of up-to-date security certificates (e.g., in the landing page but not in the elements of the main sitemap) 2: Existence of up-to-date security certificates in the entirety of the NAP platform’s elements	0 1 2 2	0.71 0.82



KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}$ **

There is a minor **change since the 2023 workshop** – update the meaning that this KPI is relevant to SSL.

Changes since 2024: Up-to-date (no outdated) security certificates always needed – better explained in the text and Value 3 removed because this is newly a part of Values 1 and 2. The question is partially adapted with the proposal of the NRA team.

1.10 “Security – providers verification” KPI assesses the extent to which the authenticity of users providing data (i.e., during the registration process) is verified. In case that a self-verification process is in place for data providers, this KPI takes a value equal to 1. There are max 2 additional points when the authenticity of provided; the first if data is double checked by both data providers and NAP operator, and the second if two factor authentication and/or user ID certificate is used.

Note: This is about binding of the user to the company or username within a registration process, not about verifying the address of the company.

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}$ **
1.10	Security – providers verification	Is the authenticity of data providers verified? <i>Note: This is about metadata of a data provider regarding the registration process (i.e., before obtaining username and password or other identity). It's about trust/credibility of a provider. It's about binding the user (provider) to the company or his name.</i>	N/A: No data provider can use the NAP interface 0: No 1: Self-authentication of data providers (e.g., via e-mail) Value+1: for each of the following options: a. Authentication of data providers is double checked, i.e., by the data provider and by the NAP operator (e.g., via checking a state registry of legal bodies) b. Usage of two-factor authentication and/or ID certificate (e.g., self-logging with secure national ID)	0 1 2 3	0.68 0.79

There is a minor **change since the 2023 workshop** – a note added to the KPI relevancy.

Changes since 2024: A two-factor authentication and/or user ID certificate added as an option. A “Value +1” principle established. Option “via checking state registry of legal bodies” adopted from the NRA team proposal.

1.11 “Personal data protection” KPI aims to assess whether personal data is stored in a manner compliant to GDPR norms. This KPI is not addressed as affecting the minimum level of service of a NAP; however, the existence of a GDPR-compliant procedure for handling personal data is associated with an increased level of service.

Note: This is not about data aimed to be published at the NAP but, e.g., about user personal information.



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
1.11	Personal data protection	If the NAP stores personal information about registered users (consumers and/or providers) that should not be published, is the storage and handling of personal information compliant with GDPR?	N/A: There is no user data stored at NAP 0: Non-compliance with GDPR 1: GDPR compliance at the platform level (i.e., “platform GDPR compliance”)	0 0 1 1	0.71 0.71

Changes since 2024: Mentioned that this is not about data aimed to be published. Grammar “with GDPR” adopted from the NRA team proposal.

1.12 “Procedure for input of metadata or data to the NAP” KPI assesses whether data providers need to register to add (input) data/metadata. It gets a value equal to 0 when data or metadata is uploaded by the NAP operator, equal to 1 when data providers upload data/metadata by themselves, equal to 2 when there is some interface used by data providers. REQ level of service is associated with possibility on behalf of data providers to upload data/metadata by themselves with some interface.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
1.12	Procedure for input of metadata or data to the NAP	In what way can data providers add data and/or metadata to the NAP?	0: No data or metadata can be provided by the providers via the NAP online/web interface (i.e., NAP is providing its own data/metadata only) 1: Data resource metadata and/or providers' data is added by the NAP operator (e.g., by changing the website code or using internal NAP interface) 2: The data providers are inputting data and/or metadata themselves using some interface.	0 2 2 2	0.75 0.71

There are some **changes since the 2023 workshop** – a KPI name clarified (that it means input) and value limits updated (REQ and ACC from 1 to 2, BEST from 3 to 4), adding more explanations including examples, especially explaining what a verification process means.

Changes since 2024: A name changed to include “input”. A little change of the Value 1 and Value 4 description. Some text added for better description of the 1st option. Value 2 newly includes “some interface” to avoid “trained monkey” principle.

1.13 “Metadata access restrictions” KPI assesses whether NAP users/data consumers require to register to access the metadata of a NAP’s publications. The indiscriminate need of NAP users/data consumers to access any type of metadata is not addressed as a favourable condition for a NAP’s level of service, considering the imposed barrier to a NAP’s content discoverability. Therefore, it is assumed that a minimum level of service is associated with the Value 3, i.e., possibility on behalf of NAP



users/data consumers to freely access the metadata of publicly available publications. Value 0 indicates that there is no metadata provided on-line.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
1.13	Metadata access restrictions	Do data consumers need to register to search through the metadata information on the NAP?	0: No metadata is provided via the NAP online/web interface 1: Consumers need to register to view (search/get access to) metadata on the NAP 2: Consumers need to register to get access to specific metadata of any dataset (e.g., dataset contact, URL). 3: Consumers need to register to get access to metadata only for non-publicly available datasets 4: No registration necessary / consumers have full access to the metadata and the search functionalities	0 3 3 4	0.61 0.57

There are some **changes since the 2023 workshop** – a KPI name clarified that this is output, the “N/A” value has changed to 0 and any other value has shifted +1, including the limits, i.e., REQ and ACC from 2 to 3, BEST from 3 to 4.

Changes since 2024: No change in the meaning. Marginal language change only within the 1st option (Value 0). A name changed as proposed by the NRA team. Grammar “search on the NAP” adopted from the NRA team proposal. Some partial texts in values 2 and 3 adopted from the NRA team proposal.

1.14 “Authentication and security mechanisms for data upload” KPI aims to assess the availability of security mechanisms controlling and restricting the possibility of data uploading. This KPI is addressed as making sense only if a NAP complies with the concept of a data portal. Given that several access and authentication control methods exist, the value of this KPI is increased by 1 for each method that is applied. The predetermined options include (a) the utilization of the HTTP Strict Transport Security (HSTS) mechanism that enables the interaction of a NAP’s server with other machines only through HTTPS connections, (b) the utilization of IP Address Authentication mechanism configuring the API Gateway of a NAP to allow its interaction with machines the IP address of which is included in the list of accepted IP addresses, (c) the Basic RFC 7617 Authentication mechanism which enforces the transmission of credentials (e.g., username and password) encoded according to Base64, (d) the utilization of the Digest RFC 7617 Authentication which enforces the transmission of credentials and any other requested information in an encrypted form, (e) the authentication by URL parameters enabling the provision of authentication information to a NAP in the form of query string parameters, (f) authentication through client certificates that allow a machine to communicate with a NAP only when a client certificate (e.g., a PKCS12 file) is loaded onto that machine, and (g) authentication using tokens (e.g., Bearer token – digitally signed JWT – OAuth 2.0).

Note: This KPI is for data platform NAP type only. For metadata directory NAP type, you answer the first option. Technically, the KPI is skipped in an on-line questionnaire after “metadata directory” NAP type selection.



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
1.14	Authentication and security mechanisms for data upload	When uploading data as a provider, are there security mechanisms in place to ensure the trust in the data or restricting the access to the NAP?	N/A: Metadata directory case (No data can be uploaded via the NAP online/web interface) 0: No data can be uploaded via the NAP online/web interface in a data platform NAP type (e.g., data is received by e-mail and added by the NAP operator). 0: No security or authentication mechanisms are in place in a data platform NAP type 0: Security and/or authentication mechanisms are in place for data uploading (e.g., to ensure the trust in the data or restrict the access to the NAP) Value+1 (for each of the following options): Which security mechanisms are in place to ensure the trust in the data or restrict the access for your NAP? You can select multiple options: a. Transport security (HTTPS) b. Authentication by IP filter (access based on IP address of the provider) c. Basic authentication according to RFC 7617 (https://tools.ietf.org/html/rfc7617) d. Digest authentication according to RFC 7616 (https://tools.ietf.org/html/rfc7616) e. Authentication by URL parameters f. Authentication by client certificates (private keys, API-keys, certificates, incl. EU-wide common user authentication mechanism) g. Authentication by tokens (e.g., Bearer token – digitally signed JWT – OAuth 2.0)	0 2 2 7	N/A 0.75

There are some **changes since the 2023 workshop** – a KPI name clarified (relevancy to data) and some small updates in the values definitions incl. a reference to EU-wide common user authentication mechanism.

Changes since 2024: Authentication by tokens added as “g” option. Option “f” updated with extended description. A name changed as proposed by NRA team. Second value text partially added from the NRA team proposal and minor changes made by some other values thanks to the same source while it was not so detailed before.

1.15 “Authentication and security mechanisms for data download” follows the same logic as the previous one KPI 1.14 with the only difference being that data downloading is in the spotlight (instead of data uploading).

Note: This KPI is for data platform NAP type only. For metadata directory NAP type, you answer the first option. Technically, the KPI is skipped in an on-line questionnaire after “metadata directory” NAP type selection.



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KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
1.15	Authentication and security mechanisms for data download	When accessing data as a consumer, are there security mechanisms in place to ensure the trust in the data or restricting the access to the NAP or the data?	N/A: Metadata directory case (No data is provided via NAP online/web interface) 0: No data is provided via NAP online/web interface in a data platform NAP type 0: No security or authentication mechanisms are in place in a data platform NAP type 0: Security and/or authentication mechanisms are in place to ensure the trust in the data or restrict the access for the NAP Value+1 (for each of the following options): Which security mechanisms are in place to ensure the trust in the data or restrict the access for your NAP? You can select multiple options: a. Transport security (HTTPS) b. Authentication by IP filter (access based on IP address of the consumer) c. Basic authentication according to RFC 7617 (https://tools.ietf.org/html/rfc7617) d. Digest Authentication according to RFC 7616 (https://tools.ietf.org/html/rfc7616) e. Authentication by url parameters f. Authentication by client certificates (private keys, API-keys, certificates, incl. EU-wide common user authentication mechanism) g. Authentication by tokens (e.g., Bearer token – digitally signed JWT – OAuth 2.0)	0 2 2 7	N/A 0.57

There are some **changes since the 2023 workshop** – a KPI name clarified (relevancy to data) and some small updates in the values definitions incl. a reference to EU-wide common user authentication mechanism.

Changes since 2024: Authentication by tokens added as “g” option. Option “f” updated with extended description. A name changed as proposed by the NRA team. Minor changes made by some values thanks to the NRA team proposal while it was not so detailed.

1.16 “Indication of provided data modification” and **1.21 “Metadata about data modification”** KPIs assess the extent to data changes information. KPI 1.16 is regarding “on-line” information in the data coming with the latest version of data and belongs to data platform NAP type only. Thanks to this information, it is simple to find out if the actual content has changed in comparison to its previous state. In such a case, it is assumed that a minimum level of service is associated with the support of at least one of the possible methods. An advanced level of service is associated with the support of more methods. The pre-defined methods are “Last updated date and/or time” information included in the data and 2 applications of ability of a NAP’s webserver to use “etag” headers (the value of which supports the assessment of whether a change has been made or not) and return the changed part



of the provided content. 4th option has been added as open for any other method that should be described in the feedback.

KPI 1.21 is regarding “off-line” metadata information about data changes (update frequency and/or expected regular times of data updates, each as “Value +1”). Higher evaluation (next “Value +1”) is applied if Mobility DCAT-AP is used in such metadata information.

Note: The KPI 1.16 is for data platform NAP type only. For metadata directory NAP type, you answer the first option. Technically, the KPI is skipped in an on-line questionnaire after “metadata directory” NAP type selection.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
1.16	Indication of provided data modification	Does the NAP provide an indication of the change of the dataset in comparison to the previous dataset version when accessing the data stored at NAP? <i>Note: etag = a hash containing information about data modification that allows to download the data only if it is different from the previous version.</i>	N/A: Metadata directory case (No data is provided via NAP online/web interface) 0: No change/modification information about the data is provided 0: Some change/modification information about the data is provided Value+1 (for each of the following options): a. Webserver uses “Last updated date and/or time” information (e.g., the DATEX XML includes the “publication time” which shows when the dataset has been updated) b. NAP data interface uses If-Modified-Since header in conditional HTTP requests or timestamp parameters in API requests c. NAP data interface uses If-None-Match (etag) header in conditional HTTP requests or custom tokens parameters in API requests d. Webserver uses some other method for data modification indication (please specify the method used in the “Suggestions” box)	0 1 1 4	N/A 0.36
1.21	Metadata about data modification	Does the NAP provide metadata about the changes of the datasets? <i>Note: Such information can be a part of metadata provided by the NAP even if that data is external.</i>	0: No 0: Yes Value+1 (for each of the following options): a. NAP provides metadata about frequency of data changes b. NAP provides metadata about typical dates/times of data change/modification c. The metadata addressed in option “a” and/or “b” (above) is provided using Mobility DCAT-AP	0 0 1 3	0.42 0.36

There are some **changes since the 2023 workshop** – the “N/A” value has changed to 0 and it is merged with the original zero value. “Last updated time” added as “Value 1” and shift other higher values, so the BEST value limit is 3 instead of 2.



Changes since 2024: Value+1 principle newly used in KPI 1.16 so each option a, b, c has the same impact on the result. Some values and the KPI name updated in KPI 1.16 for better and extended description. Last updated time extended to date and/or time. 4th option added for as open for any other method that should be described in the feedback. A note added for better description of an “etag” header. KPI 1.16 transformed to be related to provided data (i.e., data platform NAP types) only. A new KPI 1.21 has been separated from KPI 1.16 addressing “off-line” metadata information about data changes (update frequency and/or expected regular times of data updates). This KPI is relevant for both NAP types and newly also includes “Value +1” for Mobility DCAT-AP usage in metadata about data modification. A question in KPI 1.16 extended based on the partial proposal from the NRA team. A “pull” command necessity was not adopted in the question from the NRA team proposal. Options including “etag” headers adopted from the NRA team proposal.

1.17 “Data transfer optimization” KPI assesses the extent to which a NAP can optimize data transferring by compressing the requested content. This KPI is addressed as making sense only if a NAP complies with the concept of a data platform, since a metadata directory is not involved at all in the data transferring process. A value equal to 0 indicates that such a functionality does not exist, while a value “+1” indicates that some of the possible transfer optimization methods are available, i.e., compression possibility, compression client’s request (de)activation possibility or differential form of provided data.

Note: This KPI is for data platform NAP type only. For metadata directory NAP type, you answer the first option. Technically, the KPI is skipped in an on-line questionnaire after “metadata directory” NAP type selection.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits*	Weight $W_{i,j}^{**}$
1.17	Data transfer optimization	Can the NAP server compress the requested data content to speed up the transfer?	N/A: Metadata directory case (No data is provided via the NAP online/web interface) 0: No data is provided via the NAP online/web interface in a data platform NAP type or no possibility of data transfer optimization there (i.e., no reaction to a client request, data is provided in an uncompressed form) 0: Data is provided (un)compressed per clients' request Value+1 (for each of the following options): You can select multiple options: a. Data is (or can be) provided compressed in a transport layer as negotiated between client and server via the HTTP Accept-Encoding header or via tailored API request b. Data is (or can be) provided compressed in an application layer as selected by the user when subscribing (e.g., in ZIP packages) c. Data can be provided in a differential form, i.e., new data only and/or changes to the previous state where a relevant date/time/period can be set by the user	0 0 1 3	N/A 0.36



There are **changes since the 2023 workshop** – values total changes, for independent inclusion of options a, b, c (see the “Values definition” column, i.e., the value is a sum of individual a, b, c contributions). So the BEST limit is 3 instead of 1.

Changes since 2024: The option “Data provided compressed” divided into two options (related to different layers) based on NRA group proposal. The option about possibility to select compression by the user removed, it is a part of the new options, see “is (or can be)” structure. A discussion has run confirmed that this KPI is for data platform NAP type only and there is no need to assess metadata transfer optimization.

1.18 “API usage for data transfer” KPI investigates whether a NAP is equipped with an Application Programming Interface (API) service that allows clients of data consumers to request and download data content through external code or other resources matching specific queries. Moreover, it investigates whether such a service allows the clients of data providers to automatically upload and import (through external coding) new data content but also update it or even delete it.

This KPI is addressed as making sense only if a NAP complies with the concept of a data platform, since a metadata directory is not involved at all in the data transferring process. Given that the focus of NAPs is placed (or at least should be placed) on machine-to-machine communication and data exchange supporting the operation of ITS systems, a minimum level of service is associated with the existence of an API service allowing at least one of automated download or automated upload of data content.

Note: This KPI is for data platform NAP type only. For metadata directory NAP type, you answer the first option. Technically, the KPI is skipped in an on-line questionnaire after “metadata directory” NAP type selection.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
1.18	API usage for data transfer	Does the NAP include Application Programming Interfaces for automated data exchange?	N/A: Metadata directory case (No data is transferred via the NAP interface) 0: No API, just the web-based interface is used in a data platform NAP type 0: API is available in a data platform NAP type Value+1 (for each of the following options): API is available in a data platform NAP type. Which Application Programming Interfaces for automated data exchange are used for your NAP? You can select multiple options: a. API for upload (data providers) b. API for download (data consumers)	0 1 1 2	N/A 0.46

There are some **changes since the 2023 workshop** – updated “N/A” and “0” value definition according to the NAP type, updating the sense – the data transfer can be both directions.

Changes since 2024: Asking for data provision removed as this KPI is intended to data platforms. Possible transfer to the Interoperability FC rejected as this KPI is about API for data exchange (download and/or upload) so Access FC should be okay. An API usage for metadata was discussed and KPI 1.20 temporary suggested but it was then removed because of overlapping with the



“Harvesting functionality” in KPI 6.2 in the Interoperability FC. Second value text used from the NRA team proposal to update the previous version.

3.5 Communication KPIs

2.1 “Support to users to register and add data/metadata” KPI assesses whether a NAP provides information to support NAP users how to register and (more importantly) how to add data, metadata, or both (depending on the type of NAP under evaluation). It is assumed that a NAP shall at minimum provide written support information in the local language (on the website or downloadable). This condition is indicated by a value equal to 1. The availability of such information in English language is indicated by a value equal to 2. The value of this KPI is increased by 1, either when additional support can be provided text-based via contact form, e-mail, text messenger; or when such support can be provided via telephone or web calls which can be booked; or when such support can be provided via chatbot

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
2.1	Support to users to register or add data/metadata	Is support to users to register and add data/metadata available?	0: No support or telephone number only is available 1: Instructions or support information is available on the site but not in English 2: Instructions or support information is available in English Value+1 (for the following option): Are there other types of support to register and add data/metadata?: a. contact form or E-mail b. phone or web call (e.g., booking system for Teams call) c. chat or chatbot d. FAQ in national and English language e. user forum	0 3 3 5	0.79 0.61

There are some **changes since the 2023 workshop** – “and” to “or” in the KPI name has changed, minor language changes in values definitions, moved former a. answer to 0.5, REQ limit changed to former b. + c. (from 1 to 2), BEST limit from 4 to 2, telephone option moved to zero value.

Changes since 2024:

- Changes in value definitions: 1 (former 0.5): not in English, 2 (former 1) also in English
- Added support options “b. Via phone or web call” and “c. Via chatbot” and amended support option a. with “or”. e. any text-based support; edited option "a. Via contact form or E-mail" with "or text messenger"

2.2 “Related services monitoring process” KPI assesses whether there is an implemented **process** that monitors the external relations of a NAP to indicate its influence on the development and operation of ITS services.



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
2.2	Related services monitoring process	Is there any monitoring process in place which tracks the use of the data available at the NAP? This would normally be based on feedback from data users on which applications are using the data (e.g. end-user information services like website/web service or smartphone apps; but also applications/services to ease operations of any transport infrastructure or mobility service) If yes, please describe your insights on the usage of NAP data in any services or indicate if there is a report on the monitoring results available.	0: No 1: Yes	0 0 1 1	0.25 0.25

There is a minor **change since the 2023 workshop** – the KPI name and definition updated to provide more clarification.

Changes since 2024:

- Aligned description, KPI name and definition: Now, this KPI consistently asks for a *process* (either automated or manual) which monitors *services* which use the available data at the NAP.
- rephrased the example
- added the possibility to describe the results of the monitoring in order to get an overview of different options how to get information about added-value of NAP (data). This also includes qualitatively the results which previously were asked for in KPI 2.3.

Changes 2024: KPI 2.3 integrated into KPI 2.2 (describe the monitored services using NAP data).

2.4 “NAP promotion channels” KPI records the different official channels, such as conferences, webinars, and social networking, that are used by the NAP operator within the last calendar year for promoting NAP. The possible values range from 0 to 5. The value is increased by 1, if either the NAP was promoted on a conference or trade fair, e.g. with a paper, a presentation, a special booth, flyers on the booth of the NAP operator; or if the NAP operator has organised one or more webinars to promote or inform about the NAP; or if the NAP was promoted on LinkedIn with an own account and at least two news items (or comparable on other social networks); or if the NAP was promoted with a dedicated paper in a journal. Any other channel which can be specified, can also increase the value by 1. It is assumed that at least three different channels shall be utilized for achieving a minimum acceptable level of service.



KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
2.4	NAP promotion channels	Were official channels used to promote the NAP within the last calendar year?	0: No Value+1: Yes, a: NAP was promoted on a conference or trade fair (apart from NAPCORE MDD) b: NAP was promoted with webinars c: NAP was promoted on LinkedIn (or other social networks) with an own account and at least two news items d: NAP was promoted with a dedicated paper in a journal e: NAP was promoted through another channel (please specify in the "Suggestions" box)	0 1 3 5	0.13 0.14

There are some **changes since the 2023 workshop** – the REQ limit changed from 3 to 1, the upper limit in a questionnaire removed, replaced with infinity (while the BEST limit remains at 6).

Changes 2024:

- The KPI name was changed from "NAP promotion – number of channels" to "NAP promotion channels". The KPI no longer offers an infinite number of values but a multiple selection of 5 options (see values definition).
- Deleted "regularly" in the definition since the time is already defined with "within the last calendar year".
- Deleted the examples in the definition since they are now given as options in the value definitions.

Change 2025: KPI 2.5 Integrated as one option to KPI 2.4 "NAP promotion channels"

2.6 "Contact details" KPI aims to assess whether a NAP provides contact information (at least email address or telephone number) of the data providers to data consumers. The possible values of this KPI range from 0 to 2 with a value equal to 0 indicating that there are no provided contact details, a value equal to 1 indicating that the contact details of some data providers are made available through the NAP web page, a value equal to 2 indicating that contact details of all data providers are published. It is assumed that a NAP shall provide contact information of all data providers for achieving a minimum acceptable level of service.

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
2.6	Contact details	Does the NAP provide contact details of the data providers?	0: No contact details are available 1: Contact details of some data providers are published 2: Contact details of all data providers are published	0 1 2 2	0.75 0.82



There is a minor **change since the 2023 workshop** – a definition (question) has been precised.

Changes 2024:

- Changed KPI name from “Contact means” to “Contact details”.
- Changed the KPI definition: The KPI does not refer to contact details of the NAP operator any longer, since this should be covered by KPI 2.1 “Support to users to register and add data/metadata”
- Simplified the values definition: 0: no contact details; 1: contact details of some data providers; 2: contact details of all data providers.

2.7 and 2.8 “Mass notifications – data providers” and “Mass notification – data consumers” KPIs assess whether a NAP can massively notify registered data providers and data consumers, respectively, about the latest updates and changes. Its value ranges from 0 to 3. A value equal to 0 expresses that no mass notification functionality or procedure is in place. A value equal to 1 expresses mass notifications encompassing only legal updates (e.g., changes in terms and conditions of data reuse). The value is increased by 1 if mass notifications are tailored to the needs of data providers or consumers respectively, e.g. (for data providers) new requirements for data provision like a new data profile or (for data consumers) substantial changes in already published datasets. It is assumed that this KPI does not relate to the minimum acceptable level of service of a NAP but expresses an advanced level of service when notifications encompass both legal and content updates.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
2.7	Mass notifications – data providers	Are mass notifications available on the NAP website for the registered data providers? <i>Mass notification means: ability to deliver a message or information to all data providers, e.g. via email newsletter.</i> <i>Example of a Mass notification could be: “Inform all data providers that the use of Mobility DCAT-AP is mandatory from 2025.”</i>	N/A: No data providers accounts / no registrations 0: Mass notifications are not available to registered providers 0: Mass notifications are available to registered providers Value+1 a: Mass notifications are possible for legal (T&C) updates Value+1b: Mass notifications are tailored according to the data provider's needs, e.g. new requirements for data provision like data profile c: Mass notifications are available on the NAP website to the registered data providers, e.g., pop-up information after logging in	0 0 1 3	0.20 0.46
2.8	Mass notifications – data consumers	Are mass notifications available on the NAP website for the registered data consumers? <i>Mass notification means: ability to deliver a message or information to all data consumers, e.g. via email newsletter.</i> <i>Example of a Mass notification could be: “Inform all data consumers that the use of Mobility DCAT-AP is mandatory from 2025.”</i>	N/A: No data consumers user accounts / no registrations 0: Mass notifications are not available to registered users 0: Mass notifications are available to registered data consumers Value+1 a: Mass notifications are possible for legal (T&C) updates b: Mass notifications are tailored according to the data consumer's needs, e.g., content updates or change in the way the consumed data is provided	0 0 1 3	0.20 0.46



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
			c: Mass notifications are available on the NAP website to the registered data consumers, e.g., pop-up information after logging in		

There is a minor **change since the 2023 workshop** – a description and an example added of a mass notification message (in both KPIs).

Changes 2024: KPIs were changed to multiple-choice KPIs. Examples in the description and in the value definitions were added. The Value “Mass notifications are possible for legal and content updates or news” was deleted since content updates can be covered via the value “Mass notifications are tailored according to the data consumer’s needs”

2.9 “Monitoring and evaluation” KPI assesses whether a NAP has implemented technical procedures for monitoring and evaluating its content. The value of this KPI is increased by 1, when a NAP complies with one of the following parameters. The first parameter involves the monitoring of the visibility of a NAP with counting the access, counting the number of search requests and/or the number of registered users. The second one involves the collection of statistics regarding the consumption of the datasets at a data platform NAP. The third one involves the measurement of the performance of the system (e.g., downtime, consequences for other systems, etc.), while the final one involves the assessment of the usefulness of a NAP (e.g., qualitative feedback on the re-use of the provided data, rating of quality, surveys, etc.). It is assumed that the current KPI is not related to the minimum acceptable level of service of a NAP.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
2.9	Monitoring and evaluation	Have technical procedures been established to monitor and evaluate the success and impact of the NAP?	0: No 0: Yes Value+1 (for each of the following options): Which technical procedures are established to monitor and evaluate the success and impact of the NAP? You can select multiple options: a. Counting the access to the NAP, the number of search requests and/or the number of registered users b. Collecting statistics on the consumption of datasets (e.g., downloads, subscriptions, page views) c. Measuring performance of the system (e.g., downtime, consequences for other systems, etc.) d. Measuring usefulness of the NAP (e.g., qualitative feedback on re-use, rating of quality, surveys, etc.)	0 0 1 4	0.43 0.54

There are minor **changes since the 2023 workshop** – language change in a KPI definition and value definitions. Value 0 for “yes” is okay because the value rises as you answer a. to d.

Changes 2024:



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- This KPI has been shifted from Feature Category 4 (Update and maintenance) to Feature Category 2 (Communication).
- For clarification, this KPI now asks for technical monitoring and evaluation procedures, so manual processes are excluded.
- Editorial changes to the text description of the KPI.
- Value a. extended with the options to count not only the access to the NAP, but also the number of search requests or the number of registered users.

3.6 Data discovery KPIs

3.1 “Free-text search” For data discovery, a free-text search is a common option to find relevant datasets. A NAP is expected to offer such a functionality which is related with a KPI value of 1. The value can be increased by 1 with three different options. The first option is smart processing of the search query which sorts the results according to how well they match the search query. This is probably often the case as some logic has to be implemented how the results are displayed. A second option for an increase of the KPI value is the free-text search of organisations as data providers. This becomes more relevant, the more data providers there are at a NAP. Further free-text search options can be described in the comments and can also raise the value by 1, e.g. the search for data profiles or delegated regulations, but also maybe AI-supported functionality to find the most suitable dataset. The best value of this KPI is already reached with a value of 3.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}**</i>
3.1	Free-Text Search	Is a free-text search available?	0: No available free-text search 1: Yes, free-text search can be used to find datasets (e.g. considering text in title, description or in other metadata elements) Value+1 (for each of the following options): a. Smart processing of search query to sort the results according to how well the match the search query b. Data providers (organisations) can be searched with free-text c. Other search options with free text (e.g. search for data profiles or delegated regulations, but also maybe AI-supported functionality to find the most suitable datasets; please specify in the “Suggestions” box)	0 1 1 3	0.89 0.89

There are **changes since the 2023 workshop** – a REQ limit changed from 1 to 2 to search/filtering based on harmonised metadata, “filtering” added, option “save search pattern and settings” is moved to KPI 3.2, the BEST limit changed from 8 to 6, minor language changes.

Changes 2024: Title changed from “Search functionalities” to “Free-Text Search”. Limited the scope of this KPI to solely the free-text search. Therefore, description, definition, values and their limits have completely changed.

3.2 “Filtering options” Filtering datasets can be used for discovering datasets (i.e. metadata descriptions of available content data) from the start, but also to narrow down results from a free-text search query. There are many possibilities according to which properties of a dataset can be filtered. The most important properties increase the value of this KPI by 1: Delegated Regulation (according to



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which regulation the data was provided), transport mode / category, data provider (organisation), data format or data model, data profile, type of interface or access option, licence type. One more option which can be described in the comments can increase the value again by 1. It is expected that at least two filtering properties are implemented. The maximum value is reached with 7.

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
3.2	Filtering options	According to which properties can the displayed datasets be filtered?	0: Displayed datasets cannot be filtered Value+1 (for each of the following options): a. Delegated Regulation b. Transport mode / category c. Data provider (organisation) d. data format, data model e. data profile f. type of interface or access option g. license type h. temporal validity i. other (please specify in the “Suggestions” box)	0 1 2 7	0.89 0.86

There are **changes since the 2023 workshop** – re-definition of values for better explanation, option “c” added from KPI 3.1 (i.e., the BEST limit changed from 3 to 4), and minor language changes.

Changes 2024: Title changed from “search results” to “Filtering options”. Limited the scope to filtering options. Therefore, description, definition, values and their limits have completely changed.

3.3 “Provision of machine – readable metadata” KPI aims to assess the machine readability of a NAP’s metadata. A value equal to 1 indicates that machine-readable metadata of any description of data provided via the NAP (i.e. any metadata set represented in a common structured format (e.g., JSON, XML)) can be generated or downloaded, while a value equal to 2 indicates that metadata comply to a harmonized application profile and can be represented in a common format using the concept of Linked Data (e.g., RDF). A value equal to 3 indicates that the machine-readable metadata is provided as Linked Data using mobilityDCAT-AP.

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
3.3	Provision of machine-readable metadata	Is machine-readable metadata provided by the NAP?	0: No availability of machine-readable metadata 1: Provision of machine-readable metadata in a structured format (JSON, XML, ...) 2: Provision of machine-readable metadata as Linked Data (“RDF” that also can be expressed in JSON-LD, ...) in a self-describing format 3: Provision of machine-readable metadata as Linked Data compliant to mobilityDCAT-AP	0 2 3 3	0.64 0.61



There are **changes since the 2023 workshop** – the REQ limit changed from 0 to 2, as basic requirement for interoperability, re-definition of values for better explanation, value 3 added (so the BEST limit changed from 2 to 3).

Changes 2024: Title changed from "Machine-readable metadata" to "Provision of machine-readable-metadata". Rewrote the KPI description. Changed value 3 from "machine-readable metadata in a self-describing format complying to commonly agreed standard" to "Linked Data compliant to mobilityDCAT-AP".

3.4 "Map-based search"

As mobility data is always also geospatial data, a map-based search could be of use for some datasets offered at the NAP. This can be done either by displaying all available data on a map in order to find relevant data or by displaying the results from an earlier free-text search or filtering selection.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
3.4	Map-based search	Is machine-readable metadata provided by the NAP?	0: No Value+1 (for each of the following options): a. Datasets are displayed on the map b. A map or map section can be used to filter displayed search results	0 0 0 2	0.64 0.61

Changes 2024: KPI 3.4 was added in version 2025. Before, in KPI 3.1 (Search Functionalities) and 3.2 (Search Results) before.

3.7 Update and maintenance KPIs

4.1 "IT services" KPI assesses whether there are established responsibilities for resolving as quickly as possible technical issues that may affect the operation of a NAP (both software- and hardware-related issues are encompassed). While a value equal to zero corresponds to the scenario where such responsibilities are not assigned, higher levels of service values depend on the establishment of responsibilities and the planning for the long run maintenance of the NAP

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
4.1	IT services	Are there procedures established to ensure the continuity of the NAP IT services?	0: No, there are no responsibilities assigned or measures foreseen for the maintenance and update of the NAP IT services 1: Yes, there are maintenance and update procedures well-established Value+1 (for each of the following options) How is the NAP continuity guaranteed? a. Common responsibilities established (signed SLA with IT company(s)) for the NAP services (system, software and hardware) maintenance and updates, backups, and hosting	0 1 1 2	0.43 0.57



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
			b. Measures for the NAP services continuity in the long term and subsequent funding are foreseen		

There are minor **changes since the 2023 workshop** – language changes in a KPI definition and value definitions.

Changes since 2024: setup of the values' definition – now it is possible to reply positively to the different options.

4.2 “Link checking frequency” KPI assesses the existence of predetermined processes and responsibilities among NAP operators, data providers for controlling the quality and maintaining the NAP links, insuring that they are functioning correctly. The difference between the possible values relates to the frequency of these checks.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
4.2	Link checking frequency	How often are the NAP links for data access checked, in order to know whether they are still functioning correctly?	0: no established procedures for link checking 1: Links are checked with publishing (i.e., once) 2: More than six months of interval 3: every six months 4: Monthly 5: Weekly or more often	0 1 1 5	0.64 0.71

There are minor **changes since the 2023 workshop** – language change in a KPI definition and value definitions.

Changes since 2024: scope changed – before, it was related to content and metadata; now, it concerns the maintenance of the NAP links. Also, more strict options are available within the values' definition, such as monthly or weekly.

4.3 “Monitoring and evaluation” Change in 2024: moved to Category 2 – Communication.

4.4 “Metadata maintenance frequency” assesses the frequency on which metadata are maintained and updated. This is relevant since metadata specifications are often changed due to stakeholder needs and market developments, and these changes should be reflected on the NAPs to ensure data discoverability. The KPI's possible values comprise difference options for the frequency of maintenance, where higher values correspond to higher frequency.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
4.4	Metadata maintenance frequency	How often is metadata maintained and updated?	0: no established procedures for metadata maintenance or more than 1 year of interval between subsequent updates	0 1	0.64 0.71



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
			1: once a year 2: every six months 3: every three months or less	1 3	

Changes since 2024: this is a new KPI – originated by the split of KPI 4.2 – which previously encompassed links, metadata and content, and now is limited to link checking.

4.5 “Data (content) maintenance” evaluates the existence of procedures for keeping the data up-to-date by systematically assessing data (content) quality. This is a binary KPI that does not check the frequency at which the data quality is checked, but only verifies if there are processes established in this regard.

Note: This KPI is for the data platform NAP type only. For metadata directory NAP type, you answer the first option. Technically, the KPI is skipped in an on-line questionnaire after “metadata directory” NAP type selection.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
4.5	Data (content) maintenance	Does the NAP have an established procedure for data (content) quality checking/validation?	N/A: Metadata directory case 0: No, there are no procedures in place 1: Yes, some sort of quality checking/validation is performed (e.g., manual or automatic; one time or regularly; please specify the procedure in the “Suggestions” box)	0 0 1 1	N/A 0.71

Changes since 2024: This is a new KPI – originated by the split of the previous KPI 4.2 definition, which also included quality checks.

3.8 Dataset information KPIs

5.1 “Documentation & description of datasets” KPI assesses whether the datasets of a NAP are accompanied by supporting material, such as documentation, high-level descriptions (included in a metadata filed), XML schemas or samples, or even further detailed documentation. The minimum level of service is associated with the provision of XML schemas or samples. In case there are available links with additional information about datasets, an advanced level of service is assumed.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
5.1	Documentation & description of datasets	How does the NAP provide documentation and a description of datasets?	0: Lack of dataset documentation and description 1: High-level description of datasets including standard metadata elements 2: Availability of links and supporting material in the form of XML schemas and samples, where necessary 3: High level description of datasets including standard metadata elements,	0 1 2 3	0.68 0.68



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
			XML schemas and samples, and further supporting material such as detailed documentation and protocol documentation		

There are **changes since the 2023 workshop** – a relevancy changed to data platform only (i.e., a new “N/A” value for metadata directories), XML schemas also belong to Value 1, while merging former values 0 and 1 to Value 0 and adding Value 2 based on dividing the value containing XML schemas; the ACC value changed from 2 to 1.

Changes since 2024: Reformulation of question for clarity purposes and changes in the technical values, namely:

- Distinguishing between total lack of description and high-level description of datasets
- Distinguishing between XML schemas and samples (values 2 and 3)
- Additional possible value for availability of extended documentation

5.2 “Classification of datasets” is the second KPI grouped into this category. Dataset classification can be based either on custom parameters such as parameters indicating the type of network or on formal terminology and coordinated metadata. A classification based on the former parameters is associated with a minimum acceptable level of service, while a classification based on the latter parameters is associated with a REQ required level of service.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
5.2	Classification of datasets	Does the NAP provide, through metadata, the classification of datasets based on standard/controlled vocabularies?	0: Lack of dataset classification 1: Classification of datasets based on custom parameters only (e.g., transport mode/network covered) 2: Classification of datasets based at least on formal terminology/keywords (vocabulary of the mobility-DCAT-AP) or coordinated metadata catalogues	0 1 2 2	0.83 0.75

There are some minor **changes since the 2023 workshop** – the value definitions updated for better description.

Changes since 2024: simple change to the question’s definition for clarity purposes.

5.3 “Quality indicators for datasets” KPI assesses the extent to which a NAP provides insight into the quality of the provided data/metadata. There are four possible values that this KPI may take. A value equal to 1 indicates that a NAP includes a description of the quality of the provided metadata (e.g., based on a pre-established metadata quality assessment scheme, or using the field available in the mobilityDCAT-AP profile for the data provider to indicate the quality of the data). A value equal to 2 indicates that a NAP provides a description of general quality definitions to support its users to self-assess the quality of utilized data or high-level quality assessment statements in the metadata of hosted publications. On the other hand, a value equal to 3 indicates that a more detailed data quality description is provided in the metadata of hosted publications; however, provided details and values



do not cover the entirety of quality fields that may relate to the nature of exchanged data. Finally, a value equal to 4 indicates that there is a solid description of all fields. It is assumed that a NAP shall at least provide metadata quality descriptions for achieving a minimum acceptable level of service.

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits [*]	Weight $W_{i,j}^{**}$
5.3	Quality indicators for datasets	Does the NAP provide information or descriptions for data quality for the published datasets?	0: No 1: Yes, the NAP provides a metadata field where the data provider can describe the quality of the dataset 2: Yes, in addition to the metadata field the NAP provides reference to applicable quality frameworks (e.g. EU-EIP and or NAPCORE) to support the data provider in quality assessment of the dataset 3: Yes, all datasets at the NAP have quality information indicated through the metadata field, using the reference quality frameworks provided by the NAP	0 1 2 3	0.54 0.50

Changes since 2024: change of KPI category. Addition in the values to the references to applicable quality frameworks (e.g. EU-EIP and or NAPCORE) and metadata field on quality information

5.4 “Data visualization” and 5.5 “Metadata visualization”: These KPIs assess the extent to which a NAP can support the visualization of its exchanged content. This means extended view on dataset information. Visualization options are divided according to the form of visualization, namely numbers and graphs, map outputs, or animations (that are typically relevant for time series of data).

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits [*]	Weight $W_{i,j}^{**}$
5.4	Data visualization	Does the NAP include data visualization functionalities? <i>Note 1: Data visualization means that NAP is providing visual information about data, e.g., showing the traffic flow, speed or congestions along the time or along the road network, map visualization with location of truck parking locations etc.</i> <i>Note 2: Even if no data is provided via NAP interface (like in metadata directories), it is still possible to have visualization available, e.g., through WMS.</i> <i>Note 3: Metadata is addressed in the following KPI.</i>	0: No visualization of data 0: Visualization is available Value+1 (for each of the following options): What types of data visualization functionalities are available? You can select multiple options: a. Visualization of numbers and charts derived from data records b. Visualization of data on a map (may include location points, lines or areas) c. Visualization can use animation of “a” or “b” options above, e.g., an animation or video for a time series of a selected period	0 0 1 3	0.15 0.25
5.5	Metadata visualization	Does the NAP include metadata visualization functionalities? <i>Note: Metadata visualization means that NAP is providing visual information about metadata, e.g., showing the</i>	0: No visualization of metadata 0: Visualization is available Value+1 (for each of the following options): What types of metadata visualization functionalities are	0 0 1 2	0.25 0.25



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
		<i>positions or areas in the map where the data is obtained (and their attributes) or bar chart with “how many organisations provide data to the NAP per year”.</i>	available? You can select multiple options: a. Visualization of numbers and charts derived from metadata records resp. information/news about datasets b. Visualization of metadata on a map (may include location points, lines or areas)		

There are some **changes since the 2023 workshop** – KPI number change from former 1.20 to free position 1.6, relevance added also for metadata directories with the same weight like for data platforms. The REQ limit has changed from 1 to 0, no visualization is possible here. Examples of visualization added based on input from T2.3.

Changes since 2024: Based on the 2024 questionnaire and discussion with the NRA team, the KPI has been divided into 2 KPIs (for metadata and data) and moved from “Access” to the “Dataset information” category as KPI 5.4 and KPI 5.5. Weight reduced for Metadata directory from 0.25 to 0.15 by KPI 5.4. Values switched in the meaning of the suggestion by the NRA team, i.e., looking at the content type more than format. External visualization (at client’s side) is now not considered as it is not a function of a NAP resp. doesn’t need any specific NAP functionality.

3.9 Interoperability KPIs

6.1 “Metadata Specification” KPI indicates whether a NAP’s metadata follows the recommended specifications set. It gets a value equal to 0 it when the NAP adopts a proprietary or non-standardized metadata scheme, a value equal to 1 for when it adopts harmonised specifications other than mobilityDCAT-AP and and a value equal to 2 when metadata are completely compliant with MobilityDCAT-AP.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
6.1	Metadata specification	Has the NAP adopted a harmonised metadata specification?	0: The NAP adopts a proprietary or non-standardized metadata scheme 1: The NAP adopts harmonised metadata specifications other than mobilityDCAT-AP (e.g., the EU-EIP specification – the Coordinated Metadata Catalogue) or partially adopts the Mobility DCAT-AP 2: Full compliance/adoption with the MobilityDCAT-AP specification	0 1 2 2	0.82 0.79

There are **changes since the 2023 workshop** – a new KPI name (the former was “Metadata Catalogue”), a definition update, value definitions update, changes in the possible values because of better description and mobilityDCAT-AP inclusion.

Changes since 2024: changes to the description of values, for clarity purposes.



6.2 “Harvesting functionalities” assesses the ability of a NAP (National Access Point) to facilitate interoperability through the integration of metadata and/or datasets with other data portals and platforms. This involves the use of harvesting protocols and interfaces that enable the automated export of its metadata or datasets to external systems, and/or the import of metadata or datasets from external systems for integration and indexing. A value equal to 0 points out the absence of any harvesting functionalities. On the other hand, a value equal to 1 indicates the support of one-way harvesting functionalities, while a value equal to 2 indicates the support of two-way harvesting functionalities.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
6.2	Harvesting functionalities	Does the NAP support harvesting functionalities?	0: Absence of harvesting functionalities 0: Support of harvesting functionalities through dedicated protocols or Application Programming Interfaces Value+1 (for each of the following options): Which kind of support is provided? You can select multiple options a. Provision of harvesting interface or protocols for exporting functionalities (e.g., RESTful API, CSW, CKAN), allowing other portals to query and index metadata b. Existence of harvesting interface for integration (e.g., indexing) of data sets from other portals	0 1 1 2	0.54 0.43

There are **changes since the 2023 workshop** – new value definitions, a new REQ limit 1 instead of 0.

Changes since 2024: changes to the description of possible values (clarifying and providing practical examples).

3.10 Data Exchange and Operational Policy KPIs

7.1 “Terms and conditions for reuse of metadata and NAP website content” KPI assesses, from the perspective of a NAP operator, whether a NAP operator provides descriptive or detailed information about the terms and conditions for reuse of data or content to which NAP is the owner such as: metadata, or data originally provided by NAP, or other content displayed at the NAP. A value equal to 0 points out an absence of such a provision, a value equal to 1 indicates that there is a descriptive provision (e.g. “fair use” limit), while a value equal to 2 indicates that there is a detailed provision through standardized data licensing frameworks such as “CC (Creative Commons) License”. It is assumed that a NAP should at least provide descriptive information about the terms and conditions for data reuse.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
7.1	Terms and conditions for reuse of metadata and NAP website content	Does the NAP provide Terms and Conditions for reuse of metadata, data directly provided by NAP or other relevant information	0: No 1: Descriptive (brief text description e.g. “fair use” limit) 2: Detailed (where necessary – terms and conditions and/or standardized licenses	0 1 2 2	0.67 0.64



KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
		displayed at the NAP?	framework such as "CC (Creative Commons) License")		

There are some **changes since the 2023 workshop** – new/extended KPI definition (rephrasing to remove ambiguities).

Changes since 2024: changes to the description, with examples for clarity purposes.

7.2 "Terms and conditions for data reuse from data providers" KPI assesses, from the perspective of data provider, whether a data provider provides descriptive/detailed information about the terms and conditions of data advertised by the data provider at the NAP. A value equal to 0 points out an absence of such a provision, a value equal to 1 indicates that there is a descriptive provision, while a value equal to 2 indicates that there is a detailed provision through sample contracts or standardized data licensing frameworks such as CC – (Creative Commons) License. It is assumed that a NAP should at least mandate detailed provision through sample contracts or standardized data licensing frameworks about the terms and conditions for data reuse.

The difference between 7.1 " **Terms and conditions for reuse of metadata and NAP website content** " and 7.2 " Terms and conditions for data reuse from data providers " KPIs lies in perspective: 7.1 assesses whether the *NAP operator* provides clear information on terms and conditions for data reuse, while 7.2 evaluates whether *data providers* publishing on the NAP offer similar clarity regarding their data reuse terms.

KPI index i,j	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
7.2	Terms and conditions for data reuse from data providers	Does the NAP provide terms and conditions for the reuse of data of data provider advertised at NAP? Note: detailed terms and conditions means e.g. full sample contract conditions and/or standardized licenses framework such as "CC (Creative Commons) License")	0: No 1: Descriptive (brief text description) 2: Detailed terms and conditions can be provided for datasets 3: Provision of detailed terms and conditions is mandatory for all published data sets 4: Provision of detailed terms and conditions is mandatory for all published data sets using standardized license framework	0 2 4 4	0.67 0.64

There are some **changes since the 2023 workshop** – new/extended KPI definition (rephrasing to remove ambiguities), REQ limit changed from 1 to 2.

Change 2024: changes to the description, values and limits with examples for clarity purposes.

7.3 "Operational procedure information" KPI assesses whether a NAP includes guidelines and operational procedures that need to be followed for becoming a data provider or data consumer of a



NAP or, general responsibilities (who is responsible for doing what within or while using the NAP). In this case, the ACC value is set to 1 reflecting that NAPs provide such guidelines.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
7.3	Operational procedure information	Does the NAP provide operational procedure information, i.e., information about the processes in the NAP? <i>Note: Examples of operational procedure information:</i> • Terms and conditions for use of the NAP, • Governance aspects of NAP, • Processes for data quality assessment and maintenance, • How a potential data provider/consumer becomes accredited, • How the data is provided, • Where to discuss the technical issues	0: No 1: Yes (please specify in the “Suggestions” box)	0 1 1 1	0.50 0.46

There is a **change since the 2023 workshop** – a KPI definition is more precise.

Changes 2024: changes to the description and values, with examples for clarity purposes.

7.4 “Dataset compliance assessment indicator” KPI examines whether a NAP provides information on the self declarations provided by data or service providers on compliance of its datasets or services with the requirements set by the Delegated Regulations supplementing the ITS Directive. These requirements include ensuring data quality (e.g. accuracy, timeliness and reliability), accessibility, adherence to specified exchange timeframe, support for data re-use (e.g. machine readable formats), and regular update of the provided data. A value equal to 1 indicates that a NAP provides information on the results (how many) of **processed** self-declaration form that has been submitted by the provider of a dataset, attesting the compliance with these requirements. A value equal to 2 indicates that a NAP provides information about the results of **compliant** services and data sets, verifying adherence to these standards. However, this KPI is assumed as not relating to the minimum acceptable level of service of a NAP.



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
7.4	Dataset indicators	Does the NAP provide information about the data and service providers compliance assessment of datasets and services with relation to the requirements set by the Delegated Regulations supplementing the ITS Directive (e.g., regarding the quality, accessibility, exchange timeframe, re-use, and update of the provided data)	0: No 1: Provision of information on the results of processed self-declaration forms by the national body 2: Provision of information about compliant services and data sets	0 0 1 2	0.38 0.50

There is a **change since the 2023 workshop** – a KPI definition is more precise.

Change in 2024: change KPI name to make clear relation with compliance assessment. Aligned with WP5 recommendation by dividing the values into two items: “processed self declarations” and “information of compliance results”.

7.5 “Compliance assessment support by NAP” KPI assesses whether a NAP facilitates the procedure of compliance assessment by providing self-declaration templates or by enabling data providers to submit self-declarations (to National Bodies). In the first case, the KPI is equal to 1, whereas in the second one the KPI is equal to 2. This KPI is once again assumed as not relating to the minimum acceptable level of service of a NAP.

KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight $W_{i,j}^{**}$
7.5	Compliance assessment	Does the NAP facilitate the procedure of compliance assessment by providing self-declaration templates or by enabling data providers to submit self-declarations to the NAP ?	0: No 1: NAP provides self-declaration forms/templates without any additional involvement in process 2: NAP facilitates the submission of self-declarations, in addition to providing the templates	0 0 1 2	0.38 0.50

There is a **change since the 2023 workshop** – a KPI definition and value definitions are more precise.

Change in 2024: Clarified that the KPI is about supporting the compliance process: facilitate “with provision of templates” and “supporting the submission”.

7.6 “Association of published datasets with Delegated Regulations” KPI assesses whether the metadata provided by a NAP can indicate the relevance of its datasets with the Delegated Regulations supplementing the ITS Directive (using European legislation identifier according to the mobilityDCAT-AP profile). Both ACC and REQ value is set to 1, reflecting that such an association is necessary.



KPI index <i>i,j</i>	KPI name	Definition by question(s)	Values definition	Limits *	Weight <i>W_{i,j}</i> **
7.6	Association of published datasets with Delegated Regulations.	Are datasets published associated with Delegated Regulations supplementing the ITS Directive?	0: No 1: Yes 2: Yes, via metadata (using European legislation identifier according to the mobilityDCAT-AP profile).	0 1 2 2	0.50 0.46

There is a minor **change since the 2023 workshop** – a KPI name is updated (replacing DR abbreviation), and minor language changes.

Change in 2024: changes to the description and values, with examples for clarity purposes.

There is a **change since the 2023 workshop** – a KPI definition and value definitions are more precise.

7.7 “Quality indicators for datasets” Change in 2024: moved to Category Dataset information.

4 NAP LoS self-assessment

After developing the NLKF, in order to achieve benefits for the harmonisation activities underscored in the introduction (i.e., supporting NAP operators and supervising bodies, developing an EU benchmark), it became necessary to create an opportunity for a larger group of NAP operators (in addition to the ones who are active in NAPCORE) to apply the framework to their own NAPs, and collect their feedback and input.

In that sense, task 2.1 partners organised three “NAP LoS Self-assessment” Workshops, two in Porto (Portugal), in 2023 and 2025, and one in Utrecht (Netherlands), in 2024. **Fehler! Verweisquelle konnte nicht gefunden werden.** shows pictures from the three events and their respective participation levels. Participation has increased over time, which demonstrates growing interest from the side of MSs and NAP operators in further developing their NAPs.





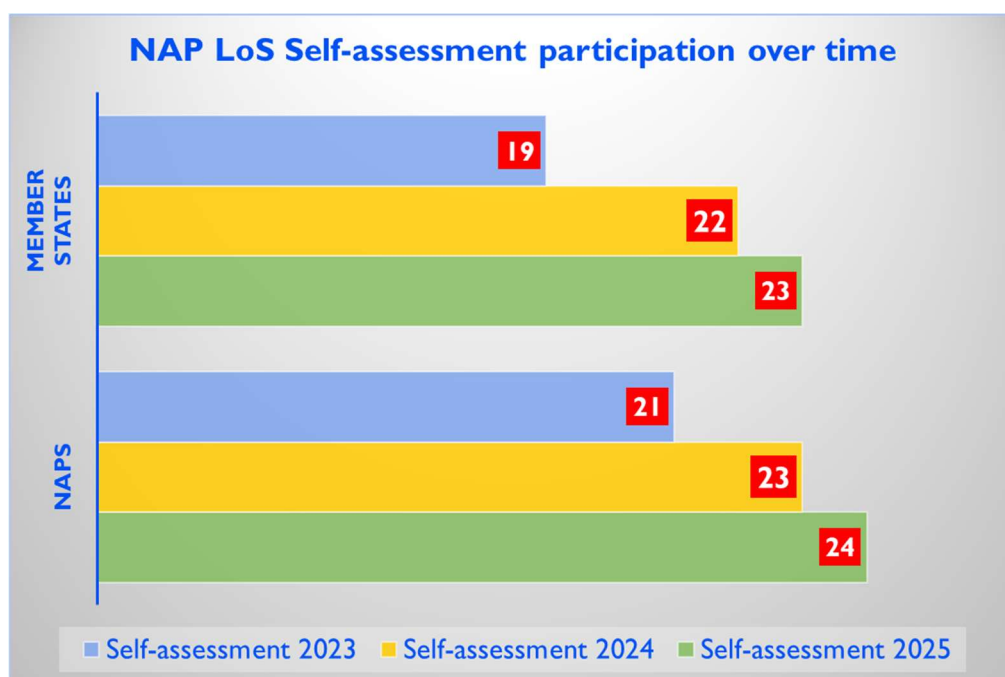
(a)



(b)



(c)



(d)

Figure 3 - (a) Workshop in Porto, 2023; (b) Workshop in Utrecht, 2024; (c) Workshop in Porto, 2025; (d) Level of participation in each Workshop

This section details the process behind this self-assessment, as well as the latest results (from the 2nd workshop) and suggested next steps.



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4.1 Self-Assessment Procedure

In both workshops, the NLKF was applied to assess the LoS of NAPs through a self-assessment procedure conducted by NAP operators. To facilitate this process, NAP operators complete an online questionnaire (Figure 4) indicating the current KPI levels for their NAPs. The collected responses are used to calculate the LoS achievement grade (and respective maturity level) of their NAPs based on the proposed methodology, KPI limits, and weights.

NAP LoS Self Assessment Workshop - 2025

The “NAP LoS self assessment” is part of the NAPCORE WG2, T2.1, dedicated to Interoperability and Levels of Service of National Access Points. It is based on the NAP LoS KPI Framework (NLKF), developed and continuously improved under task 2.1.

The “NAP Level of Service self assessment” aims **to collect the current state of the “NAP LoS” at one fixed moment**. The responses should not refer to future plans for the NAP.

The resulting “NAP Level of Service self assessment” per members state aim to develop an **European benchmark reference**, that will support further support further NAP interoperability and harmonization activities.

This NAP LoS self assessment exercise is planned to be done every year, including the update of the European benchmark reference.

The Workshop is also a moment to improve the KPI framework through clarification of KPI descriptions through live discussion and explanation. You are invited to provide your suggestions for improvement to each KPI on the “Suggestions for KPI improvement” comment box.

Figure 4 - (Printed) questionnaire used for the 2025 NAP LoS Self-assessment Workshop

Once all responses are collected, the task 2.1 team prepares an analysis of the aggregated EU-wide results, with the view to having a perspective on the EU-wide scenario of NAP LoS, as well as an individual analysis for each MS, in order to support NAP operators in upgrading their systems. The European aggregated results are presented and discussed during the Workshop, while individual results are disclosed solely to the respective NAP operator. Subchapter 4.2 provides details on the aggregated results and a glimpse of individual results from the 2025 Workshop.

4.2 NAP LoS Self-assessment Workshop 2025 - results

As mentioned above, 24 NAPs from 23 different MSs completed the self-assessment questionnaire. Most of them are data platforms, although the presence of metadata directories is also significant (see Figure 5).

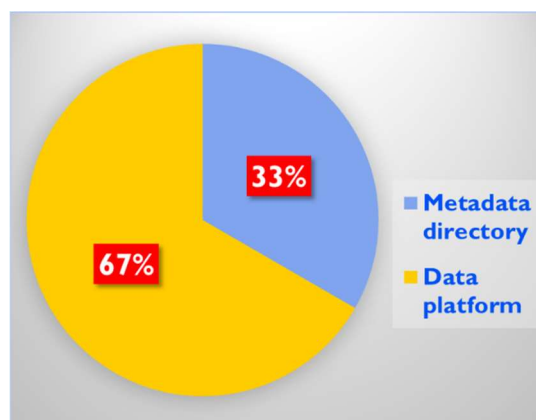


Figure 5 - NAP typology distribution across European NAPs



The results obtained for the feature categories were analysed through visuals that allowed observing the variation of grades of achievement and maturity levels throughout Europe. Figure 6 provides boxplots with the grades of achievement for each feature category, with the maturity levels displayed in the background. It is worth mentioning that the whiskers represent the minimum and maximum values obtained for each category.

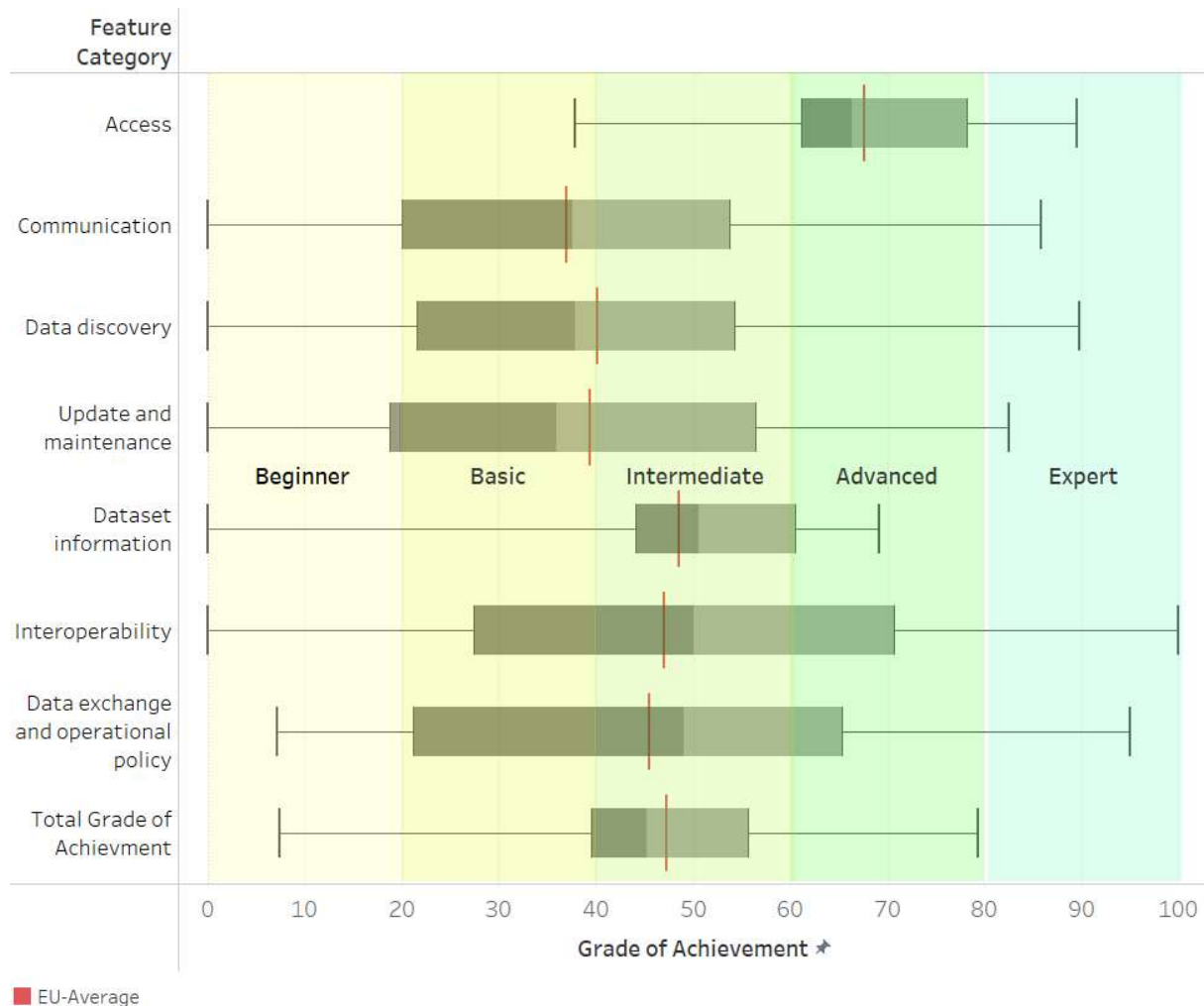


Figure 6 - Distribution of grades of achievement per feature category

Some highlights concerning Figure 6:

- Most categories exhibit intermediate maturity levels.
- The "Access" category consistently shows the highest grades and least variance.
- The EU average for the Total General Availability (GA) aligns with the "Intermediate" maturity level.
- Five categories have a minimum value of 0.
- There are notable variances across many categories, emphasising that the need for harmonisation efforts remains.

From a different perspective, Figure 7 shows the number of NAPs in each feature category:





Figure 7 - Number of NAPs in each level of maturity per category

Some highlights regarding Figure 7:

- Most NAPs remain in advanced or expert levels for “Access”
- Grades vary significantly within the following categories:
 - Communication
 - Data discovery
 - Update and Maintenance
 - Interoperability
 - Data exchange and operational policy
- Dataset information now contains more features (KPIs), with most NAPs reaching intermediate maturity
- Most NAPs with Total GA on intermediate or advanced levels

To track the evolution of NAPs over time, it is also possible to make a comparison between the last two assessments: 2024 and 2025. This was done through the visual shown in Figure 8.



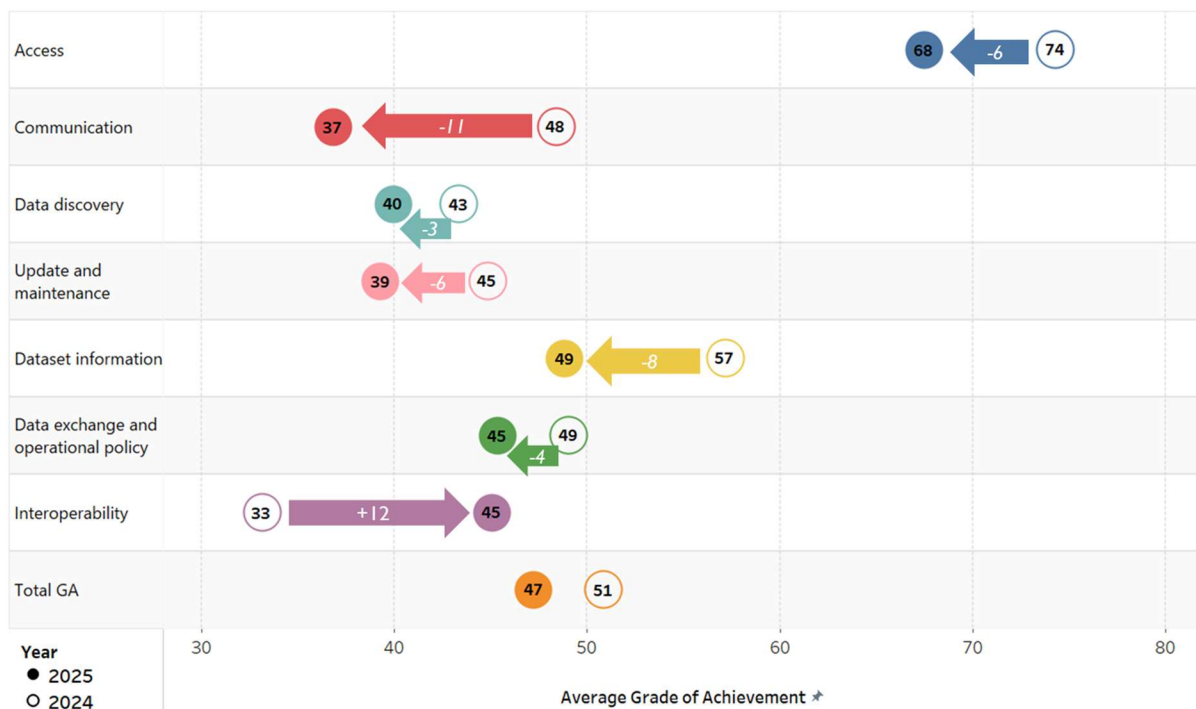


Figure 8 - Comparison between 2024 and 2025 results: grades of achievement per category

Nevertheless, it should be noted that there were significant changes to the NLKF during the 2025 update, which requires some caution when making such a comparison. As mentioned earlier in this report, these changes included changing minimum values, adding or removing features new features, which have relevant impact on the resulting grades of achievement.

Bearing this in mind, two important observations can be made by analysing the chart presented in Figure 8. One refers to these categories: access, communication, data discovery, update and maintenance, dataset information, and data exchange and operational policy. The addition of new KPIs and more rigour on minimum levels entailed lower grades in 2025 than in 2024. On the other hand, nonsignificant changes were made to the KPIs belonging to the “interoperability” features, and still grades are significantly higher, which means notable improvement has been made since last year. Therefore, although lower grades have been obtained, this does not mean that the NAPs have suffered a downgrade, but rather that the requirements for LoS are becoming more demanding.

In addition to analysing the results at the “category” level, we also assessed the aggregated results for individual KPIs, so that we could identify more specific EU-wide gaps.

The results also include NAP gaps evaluation – identification of KPIs with significant gaps, based on a methodology explained in Appendix 2. Table 2 Shows the 10 KPIs that represent the most significant gaps according to the occurrence of insufficient levels and the relevance (weights) of the features considered. The metric selected for gaps’ evaluation is the **weighted % of NAPs with non-acceptable KPIs** (see the Appendix 2 for explanation).

- The features (KPIs) that represented the “most significant gaps” were identified as #1 to #10
- The metric for determining a gap was the “weighted % of NAPs” that hasn’t achieved the minimum acceptable values for interoperability
- The last column has the simple percentage of NAPs that have not achieved the minimum acceptable values for interoperability



Table 2 - List of KPIs with most significant gaps

#	KPI no.	KPI name	Weighted % of NAPs	% of NAPs
1	1.1	Online availability	44	50
2	3.3	Provision of machine-readable metadata	40	75
3	5.3	Quality indicators for datasets	37	92
4	4.4	Metadata maintenance frequency	37	75
5	6.1	Metadata specification	35	58
6	7.2	Terms and conditions for data reuse from data providers	35	83
7	1.14	Authentication and security mechanisms for data upload	30	44
8	1.15	Authentication and security mechanisms for data download	30	56
9	2.6	Contact details	28	54
10	2.9	Monitoring and evaluation	27	83

The following observations are noteworthy:

- Automatic checking of online availability as a new requirement justifies gap #1
- Different features related to metadata remain as relevant gaps (#2, #4, and #5)
- Almost no NAP fulfils the minimum values related to quality indicators (gap #3)
- Security mechanisms seem to be a challenging aspect for data platforms

In addition to the analysis of the European aggregated results, a series of analyses were also performed on individual results for each NAP. Below follows an example of the individual insights provided solely to each NAP representative.

Table 3 depicts the grades of achievement for a specific NAP for all categories. It also includes a “score” comparison with all other NAPs (“Percentile”) and with NAPs of the same type (“Percentile WT”). The in-between brackets “W-S-B” indicate the number of other assessed NAPs that presented worse (“W”), the same (“S”) or better (“B”) results, for comparison purposes.

Table 3 - Statistical values for the NAP’s feature categories

Feature category	Grade of Achievement	Percentile (W-S-B)	Percentile WT (W-S-B)	Maturity
Total Grade of Achievement	56.33	78 (18-0-5)	86 (6-0-1)	Intermediate
Access	80.34	78 (18-0-5)	57 (4-0-3)	Expert
Communication	33.07	43 (10-0-)	29 (2-0-5)	Basic
Data discovery	51.38	70 (16-0-7)	86 (6-0-1)	Intermediate
Update and maintenance	50.00	65 (15-0-8)	86 (6-0-1)	Intermediate
Dataset information	50.54	52 (12-1-)	29 (2-1-4)	Intermediate
Interoperability	80.13	78 (18-1-4)	86 (6-1-0)	Expert
Data exchange and operational policy	37.84	35 (8-2-13)	14 (1-2-4)	Basic

The comparison analysis is also performed at the KPI level for each NAP, as shown in the example of the Table 4. The “Acceptability” shows if the NAP meets the minimum criteria for interoperability of



the respective KPI. If the NAP does not meet the criteria for interoperability, then it is classified as a “gap” for that specific KPI.

Table 4 - Statistical values for the NAP's individual features (KPIs) – Category “Access”

Individual features (KPIs)	KPI#	Percentile (W-S-B)	Percentile WT (W-S-B)	Acceptability*
Online availability	1.1	4 (1-10-12)	0 (0-5-2)	No
Compatibility with web browsers	1.2	22 (5-14-4)	29 (2-4-1)	Yes
Web performance – homepage load time	1.3	78 (18-5-0)	57 (4-3-0)	Yes
Responsiveness	1.4	30 (7-16-0)	29 (2-5-0)	Yes
Web performance – Simplicity / usability	1.5	35 (8-8-7)	29 (2-2-3)	Yes
Web performance – Consistency and navigability	1.7	0 (0-0-23)	0 (0-0-7)	No
Support of commonly used languages	1.8	57 (13-10-0)	29 (2-5-0)	Yes
Security – technical	1.9	17 (4-19-0)	14 (1-6-0)	Yes
Security – providers verification	1.10	17 (3-14-1)	20 (1-4-0)	Yes
Personal data protection	1.11	0 (0-17-0)	0 (0-6-0)	Yes
Procedure for input of metadata or data to the NAP	1.12	35 (8-15-0)	43 (3-4-0)	Yes
Metadata output and access restrictions	1.13	35 (8-15-0)	14 (1-6-0)	Yes
Authentication and security mechanisms for data upload	1.14	Not assessed	Not assessed	Not assessed
Authentication and security mechanisms for data download	1.15	Not assessed	Not assessed	Not assessed
Indication of provided data modification	1.16	Not assessed	Not assessed	Not assessed
Data transfer optimization	1.17	Not assessed	Not assessed	Not assessed
API usage for data transfer	1.18	Not assessed	Not assessed	Not assessed
Web performance – (meta)data load time	1.19	57 (13-10-0)	43 (3-4-0)	Yes
Metadata about data modification	1.21	0 (0-10-13)	0 (0-3-4)	No

4.3 Other outcomes and proposed periodical (yearly) LoS assessments

During the questionnaire completion, NAP operators have the opportunity to elaborate on their answers or suggest improvements to the KPI definitions. These suggestions serve as valuable input for the continuous development of the KPI framework, ensuring its relevance to the features offered by each NAP in Europe.

At the workshop, all suggestions are presented, and NAP operators are encouraged to comment and elaborate on their input regarding KPI definitions, descriptions, and values. The results are then incorporated into a new version of the KPI framework.

Furthermore, the workshop facilitates a joint review and discussion of European results, fostering an exchange of individual roadmaps and best practices. This collaborative process enhances a common understanding of the KPI framework and inspires further harmonised developments among NAPs.

In sum, having periodical self-assessment workshops would enable:

- Gathering insights for periodically updating the KPI framework according to developments and needs of the mobility ecosystem
- Monitoring the progress of essential features in the NAPs
- Having a common understanding and benchmarking of NAP LoS EU-wide
- Sharing best practices between NAP operators

The Workshops have been happening for three years in a row. Although the current NAPCORE ends on June 2025, we propose that they continue happening yearly as part of the follow-up project of NAPCORE, ensuring the monitoring and continuous development of NAP features throughout Europe.



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5 Governance principles for NLKF

It is crucial for the success of the NLKF to have a process for maintaining and updating the NLKF. In addition, defining clear procedures for obtaining and utilizing the results of its use is of extreme relevance as well to keep the trust and commitment of NAP operators. In that sense, this chapter delves into the following governance-related aspects:

1. Management of the NLKF and related tools – who will carry out management-related tasks regarding the NLKF? Which are the currently identified necessary tasks?
2. Further development and updates of the NLKF and tool
3. Principles for access to the NLKF and tools (documents, calculation sheets, related information, and so on...)
4. Principles for use of the NLKF and tools – who/how/when to carry out an assessment.

5.1 Management of the NLKF and tools

“Managing the NLKF and tools” accounts for:

- Carrying out periodic updates of the NLKF
- Applying the NLKF in the European NAPs (organising Workshops and events to do so)
- Collect, store and analysing the self assessment results and making note of the progress of NAP LoS through time
- Granting access to the several tools and auxiliar documents and (e.g., excel sheets with the calculations, documents containing detailed descriptions of the features included and calculation methods) related to the NLKF to interested and contributing partners
- Granting access to the results and analysis of NAP operator self-assessments of the NLKF to interested internal and external partners
- Providing clarification regarding the goals and methods behind the NLKF (as well as eventual changes) for external partners

Currently, and until the end of the NAPCORE project, the NLKF is managed by WG2 partners, in particular, task 2.1’s active members. Within the follow up NAPCORE-X project, the management of the tool will initially remain quite similar to the format that it currently has. Nevertheless, NAPCORE-X should assess the options for a long-term governance, If – for some reason – it becomes unfeasible to maintain a similar group of people assigned for these management tasks, and also explore a candidate organization which is prepared to take the responsibility of these tasks, in liaison with the governance principles explained in the following subchapters.

5.2 Further tool development and updates:

During the NAPCORE project, updated versions of the tool were developed by partners as they gained experience with the tool; this included:

- New features and/or categories
- Fine-tuning of parameters (KPI definition values, limits and weights)
- More examples of analysis of results supporting the use cases
- Reference score levels: minimum score per NAP for example based on Reference Architecture (with the collaboration of T2.3 and T2.4)

For the long-term, periodic updates of the tool are also considered within the NAPOCRE-X project. For every new iteration (assessment), the “managers” of the tool can release a new version of the NLKF, which can be updated taking several aspects into account, such as:

- Feedback from NAP operators
- Outcomes from NAPCORE(-X) and possible follow-up initiatives
- Market developments around NAPs



- Requirements/needs coming from NAP users such as data providers or data consumers (i.e service providers)

Nevertheless, the update of the NLKF should follow a stepwise and structured procedure. It is worth mentioning that there is an ongoing effort to set up a NAPCORE Github account that could host relevant documents (such as the NLKF) and where stakeholders from inside and outside of the project could provide inputs/suggestions and raise issues. This would allow to keep the track of eventual changes.

The first updates of NLKF already happened under the NAPCORE project on a yearly basis. Further updates are planned to be done in a similar manner in the upcoming years, as part of NAPCORE-X.

5.3 Access to the tool

During the NAPCORE project, all documents related to the development a use tool are accessible to all NAPCORE members via the NAPCORE SharePoint. Therefore, additions/changes to these files are not necessarily limited to task 2.1 active partners, while other NAPCORE members can also access them. At the end of NAPCORE these documents repository will be overhanded to NAPCORE-X project team.

As for external partners (e.g., NAP operators who are not in NAPCORE), those are not able to access the main documents used for the calculation of the NAP LoS within the NLKF (except for the external deliverables – Milestones). Should they have any doubts regarding the functioning of the framework, they can address them either during sessions and presentations in NAPCORE events (e.g., the Mobility Data Days, NAP LoS Workshop as part of NAPCORE-X) or request further details to the NAPCORE task 2.1 active partners, who can provide further clarification. Each NAP should nominate 1 contact person to be available for participation in governance activities (reporting, joint use and feedback sessions).

5.4 Use of the tool

The NLKF is initially designed as reference for NAP operators to conduct self-assessments of their NAPs' Level of Service (LoS). The assessment is carried out means of a annual NLKF questionnaire, which serves as the practical application of the framework. In terms of timing, there are two possible approaches for when to perform the assessment:

1. At any time by a NAP operator – the NAP operator would need to request the link to the questionnaire (which refers to the most up-to-date version of the NLKF) to the management team. After filling out the questionnaire, the answers would be sent to the managers of the tool and then turned into intelligible results (grades of achievement, maturity levels, etc.) through previously prepared computation files. Such results could be sent back to the NAP operators so that they can carry out their own analysis.
2. Periodic workshops/NAPCORE group sessions – NAP operators would have the opportunity to self-assessing their NAPs periodically, whenever a new iteration is released by the management team (following each update referred to in chapter 5.2).

As for the second approach, the “Yearly workshops” are currently be organised by NAPCORE Task 2.1. The goal is to have a yearly session where all NAP representatives perform a self assessment thorough the questionnaire at a similar period, which would allow for the development of an European score for benchmarking. The results are then analysed by the management team and the analysis (including benchmark comparisons) are then shared and discussed among the several stakeholders during the Workshop, similar to what happened in 2023, 2024 and 2025 (see chapter 4).



Appendix 1. KPI framework: Feature Category and KPI weighting

The weights of individual KPIs, as well as the weights of Feature categories, used in the calculations in the chosen methodology (see Appendix 2), are shown in this Appendix.

The values were determined for the initial (2022) version of the calculation using a questionnaire within the Task 2.1 active partners. These partners had the opportunity to evaluate the importance of Feature categories and separate KPIs using a classification scale of 1 to 5. KPIs were assessed with regard to the type of NAP. At the same time, it was possible to mark which parameters are not relevant for assessing NAPs of the “Data directory” type (setting the answer to zero).

The following images take a view to the questionnaire running in Google Forms environment:

Please, rate the importance of feature categories from 1 to 5 based on your personal estimation (1: Very low importance, ..., 5: Very high importance). *

	1	2	3	4	5
Access	☐	☐	☐	☐	☐
Communication	☐	☐	☐	☐	☐
Data discovery	☐	☐	☐	☐	☐

Please, rate the importance of each KPI element from 0 to 5 based on your personal estimation (**NAP considered as data platform**) (0: Irrelevant for this typology, 1: Very low importance, ..., 5: Very high importance). *

	0	1	2	3	4	5
On-line availability	☐	☐	☐	☐	☐	☐
Compatibility with web browsers	☐	☐	☐	☐	☐	☐
Compatibility with operating systems / platforms	☐	☐	☐	☐	☐	☐

Figure 9 - Examples of the questionnaire in Microsoft Forms

The scale <1;5> derived from the classification scale of importance used in the questionnaire was subsequently transformed into the scale <0;1> for a clearer interpretation of the weight. The arithmetic mean of the significance ratings from individual raters was used. The relevance of the parameters was agreed upon during the project meeting.

The following figures show an overview for determining the weights of Feature categories, as well as the weights and relevance of individual KPIs. MS Excel environment is used. Columns marked with numbers from #1 to #7 mean the individual results from the evaluators (project team members) from the questionnaire. Columns including weights (W_i resp. $W_{i,j}$) include arithmetic mean of individual results transformed into the scale <0;1>. Regarding Data directory NAP type, for 5 non-relevant KPIs (see the “Initial relevancy” column with “0” value cases), the weight is not necessary to be computed.



NAP Levels of Service computation - weights setting							Index	Weight							
Features category							i	#1	#2	#3	#4	#5	#6	#7	Wi
Access							1	5	5	5	5	5	5	3	0.93
Communication							2	3	4	4	4	3	5	2	0.64
Data discovery							3	4	4	5	4	5	5	4	0.86
Update and maintenance							4	4	4	5	4	2	5	3	0.71
Dataset information							5	4	4	4	4	4	5	4	0.79
Interoperability							6	5	5	4	5	2	5	2	0.75
Data exchange and operational policy							7	4	4	5	4	1	5	2	0.64

Figure 10 - Overview of the weights of feature categories

In the case of individual KPI parameters, the procedure was followed separately for both types of NAP according to Chap. 3.1. The following figure contains a part – KPIs from 1.1 to 2.4. The same procedure applies to the rest.

KPI	Index i,j	Data platform							Initial relevancy	Data directory							Initial relevancy
		#1	#2	#3	#4	#5	#6	#7		#1	#2	#3	#4	#5	#6	#7	
On-line availability	1.1	5	5	4	5	5	5	5	1	5	5	3	5	5	5	5	1
Compatibility with web browsers	1.2	5	5	5	5	2	5	3	1	4	5	5	2	5	3	3	1
Compatibility with operating systems / platforms	1.3	4	5	5	5	2	3	3	1	4	5	5	2	5	3	3	1
Responsiveness	1.4	5	4	4	2	2	1	5	1	5	4	5	4	2	3	1	1
Web performance – Simplicity / usability	1.5	4	4	4	4	3	5	2	1	4	5	5	4	3	5	2	1
Web performance – Visual hierarchy / navigability	1.6	4	3	4	4	3	3	1	1	4	2	5	4	3	3	1	1
Web performance – Consistency	1.7	4	4	4	4	3	3	3	1	4	3	5	4	3	3	3	1
Support of commonly used languages	1.8	4	4	3	4	3	5	2	1	3	4	4	4	3	5	2	1
Security – Technical	1.9	3	5	5	5	2	5	5	1	4	4	3	4	2	5	5	1
Security – Providers verification	1.10	3	4	5	5	2	5	5	1	3	4	3	4	2	5	5	1
Personal data protection	1.11	4	5	5	5	1	5	2	1	4	5	5	5	1	5	2	1
Procedure for publication of data on the NAP	1.12	3	4	5	4	4	4	3	1	3	4	5	4	4	5	3	1
Metadata access restrictions	1.13	3	4	3	4	4	1	4	1	3	4	4	4	4	1	4	1
Data security and access restrictions for uploading	1.14	3	4	5	4	4	5	3	1	4	5	0	4	0	5	3	0
Data security and access restrictions for downloading	1.15	3	4	5	4	4	1	2	1	4	3	0	4	0	1	2	0
Indication of data modification	1.16	2	2	3	2	4	3	1	1	4	2	3	2	0	4	1	1
Data transfer optimization	1.17	3	3	3	3	3	1	1	1	4	2	0	2	0	4	1	0
API usage for data transfer	1.18	2	3	3	3	4	3	2	1	5	2	0	2	0	5	2	0
Web performance – latency	1.19	4	4	4	4	2	2	3	1	5	3	3	3	2	4	3	1
Data visualization	1.20	2	1	1	1	5	1	3	1	2	0	1	1	0	3	3	0
Support to users to register and add data/metadata	2.1	3	3	3	3	4	5	3	1	5	4	4	4	0	5	3	1
Related projects monitoring service	2.2	4	1	3	1	1	3	1	1	2	0	3	1	0	3	1	1
Related projects built on the NAP data	2.3	4	1	3	1	1	3	1	1	2	0	3	1	0	3	1	1
NAP promotion – number of channels	2.4	2	1	3	2	1	1	1	1	2	0	3	1	1	1	1	1

Figure 11 - Overview of the weights of individual KPIs

For the gradual update of the KPIs between 2022 and 2025, the weight of the new parameter has always been taken or derived from the original one; there has been no need to create a new expert assessment.

The weight values for feature categories and for all individual KPIs are shown in the following tables. Weights of the Feature categories (W_i) are common for both NAP types according to Chap. 3.1, weights of individual KPIs ($W_{i,j}$) are determined separately as $WDP_{i,j}$ (for Data platform NAP type) and $WMD_{i,j}$ (for Metadata directory NAP type).

Table 5 - Weights for all categories and KPIs

Feature category index (i)	Feature category name	Feature category weight W_i for both NAP types
1	Access	0.929
2	Communication	0.643
3	Data discovery	0.857
4	Update and maintenance	0.714
5	Dataset information	0.786
6	Interoperability	0.750
7	Data exchange and operational policy	0.643



KPI index (i,j)	KPI name	WDP _{i,j} ... KPI _{i,j} weight W _{i,j} for the Data platform NAP type	WMD _{i,j} ... KPI _{i,j} weight W _{i,j} for the Metadata directory NAP type
1.1	Online availability	0.895	0.862
1.2	Compatibility with web browsers	0.763	0.730
1.3	Web performance – homepage load time	0.531	0.531
1.4	Responsiveness	0.497	0.564
1.5	Web performance – Simplicity / usability	0.630	0.696
1.7	Web performance – Consistency and navigability	0.597	0.597
1.8	Support of commonly used languages	0.597	0.597
1.9	Security – technical	0.763	0.663
1.10	Security – providers verification	0.730	0.630
1.11	Personal data protection	0.663	0.663
1.12	Procedure for input of metadata or data to the NAP	0.663	0.696
1.13	Metadata output and access restrictions	0.531	0.564
1.14	Authentication and security mechanisms for data upload	0.696	N/A
1.15	Authentication and security mechanisms for data download	0.531	N/A
1.16	Indication of provided data modification	0.332	N/A
1.17	Data transfer optimization	0.332	N/A
1.18	API usage for data transfer	0.431	N/A
1.19	Web performance – (meta)data load time	0.531	0.531
1.21	Metadata about data modification	0.332	0.387
2.1	Support to users to register or add data/metadata	0.390	0.509
2.2	Related services monitoring functionality	0.161	0.161
2.4	NAP promotion channels	0.092	0.080
2.6	Contact details	0.528	0.482
2.7	Mass notifications – data providers	0.298	0.129
2.8	Mass notifications – data consumers	0.298	0.129
2.9	Monitoring and evaluation	0.344	0.276
3.1	Free-text search	0.765	0.765
3.2	Filtering options	0.735	0.765
3.3	Provision of machine-readable metadata	0.520	0.551
3.4	Map-based search	0.520	0.551



4.1	IT services	0.408	0.306
4.2	Link checking frequency	0.510	0.459
4.4	Metadata maintenance frequency	0.510	0.459
4.5	Data content maintenance	0.510	N/A
5.1	Documentation & description of datasets	0.533	0.533
5.2	Classification of datasets	0.589	0.655
5.3	Quality indicators for datasets	0.393	0.426
5.4	Data visualization	0.196	0.118
5.5	Metadata visualization	0.196	0.196
6.1	Metadata specification	0.589	0.616
6.2	Harvesting functionalities	0.321	0.406
7.1	Terms and conditions for reuse of metadata and NAP website content	0.413	0.429
7.2	Terms and conditions for data reuse from data providers	0.413	0.429
7.3	Operational procedure information	0.298	0.321
7.4	Dataset indicators	0.321	0.241
7.5	Compliance assessment	0.321	0.241
7.6	Quality indicators for datasets	0.298	0.321

Note: “N/A” means no KPI relevancy for Metadata directory



Appendix 2. NAP LoS computation and gaps evaluation based on KPI framework

This appendix describes the methodology – how to reach quantitative and qualitative outputs (results) for NAP assessment using KPIs, i.e., Grade of Achievement, Maturity Levels and gaps evaluation.

Each KPI can be one of the following sorts:

- “binary-like” KPI (i.e., yes/no resp. 1/0),
- KPI as some quantitative value (e.g., time in seconds, number of active features), or
- KPI qualitatively based on a related numbered level scale (e.g., 1: low/2: moderate/3: high performance).

Note 1: Numerical values must always be used in the KPI values definitions to enable subsequent LoS calculation using Eq. (1) and (2) as follows.

Grade of Achievement

With this “KPI framework”, each NAP can be classified for each “Feature category”. Every single Feature category has its own **Grade of Achievement** (i.e., scoring norm) defined as a **quantitative value**, i.e., number in the scale from 0 to 100. Higher value means higher LoS in appropriate Feature category. The grade contributing to the NAP LoS is for each “Feature category” is derived from all relevant KPIs using a universal function processing KPI actual values and other features as the following Eq. (1). In principle, this is a scaled weighted mean of the relative contributions to LoS for individual KPIs (these contributions are indicated by the fraction in the right side of the numerator):

$$G_i = 100 \cdot \frac{\sum_j \left(W_{i,j} \cdot R_{i,j} \cdot M_{i,j} \cdot \frac{ACTUAL_{i,j} - WORST_{i,j}}{BEST_{i,j} - WORST_{i,j}} \right)}{\sum_j (W_{i,j} \cdot R_{i,j})} \quad (1)$$

Where:

- G_i ... Grade of Achievement for i^{th} Feature category (classification result for i^{th} Feature category defined in scale from 0 to 100)
- i ... Feature category index (1 to 7)
- j ... $KPI_{i,j}$ second index – ordinal number (1 to max) for each i^{th} Feature category
- $W_{i,j}$... $KPI_{i,j}$ parameter weight across the i^{th} Feature category (not necessarily defined as total weight = 1 but can be any other value)
- $R_{i,j}$... $KPI_{i,j}$ relevancy for the assessed NAP – binary value ... “0” for non-relevant (N/A), “1” for relevant
- $M_{i,j}$... $KPI_{i,j}$ value meeting the requirements ($REQ_{i,j}$ limit or better evaluation, see Chap. 3.3) for contribution to the Grade of Achievement for NAP LoS evaluation – binary value ... “0” for non-meeting, “1” for meeting (i.e., the $KPI_{i,j}$ value is meeting the criteria for the values regarded as Basic or Complementary, see the 5th and 6th column of the KPI definition tables below)
- $WORST_{i,j}$... worst possible limit KPI value for the computation, i.e., any possibly worse value will be considered as this value
- $BEST_{i,j}$... best possible limit value for the computation ($BEST_{i,j}$), i.e., any possibly better value will be considered as this value



- $ACTUAL_{i,j}$... actual value of $KPI_{i,j}$ obtained for the NAP from the questionnaire; if the value is like to be out of the interval $\langle WORST_{i,j}; BEST_{i,j} \rangle$, the nearest value from that interval is used instead (to solve issues with unlimited borders)

Note 2: The Eq. (1) works with all the 3 sorts of KPI mentioned above (see the Note 1).

Note 3: If the $KPI_{i,j}$ value does not reach the $REQ_{i,j}$ limit or better evaluation (see Chap. 3.3), the evaluation assumes that the KPI has not been met and does not contribute to the improvement of the evaluation although there can be some minimum value reached; this is managed by the $M_{i,j}$ parameter. In all other cases, the fulfilment ratio is considered relative to the $WORST_{i,j}$ and $BEST_{i,j}$ value.

Note 4: KPI relevancy $R_{i,j}$ may be partially prescribed according to the NAP type (data platform / metadata directory) and partly also based on the specific NAP under consideration.

Note 5: The $WORST_{i,j}$ and $BEST_{i,j}$ value depend on $KPI_{i,j}$ definition only with no link to the $REQ_{i,j}$ or $ACC_{i,j}$ limits (see the Chap. 3.3). But the $REQ_{i,j}$ or $ACC_{i,j}$ limits need to be within the $\langle WORST_{i,j}; BEST_{i,j} \rangle$ interval.

Note 6: $W_{i,j}$ weight scale is not strictly defined, i.e. the total weight across i^{th} category can be any value depending on the Feature category responsible members.

Note 7: Thanks to the fraction used in the numerator in Eq. (1), the calculation is universally applicable both for KPIs where the highest LoS occurs for highest KPI values, and for KPIs where the highest LoS occurs for lowest KPI values (e.g., the time delay).

Note 8 – NLKF tuning possibilities: The evaluation model for individual KPIs can be tuned by adding/removing KPIs, and also by changing the numeric values defining the KPI values and limits (see Chap. 3.3 to 3.10). The rating model for each “Feature category” can be further tuned by changing the weights $W_{i,j}$ of individual KPIs and weights W_i of Feature categories (see Appendix 1).

Maturity levels

The quantitative result as Grade of Achievement can also be interpreted in a **qualitative form** as **Maturity Level**. Both the Maturity levels and appropriate Grades of Achievement are depicted in Figure 12.

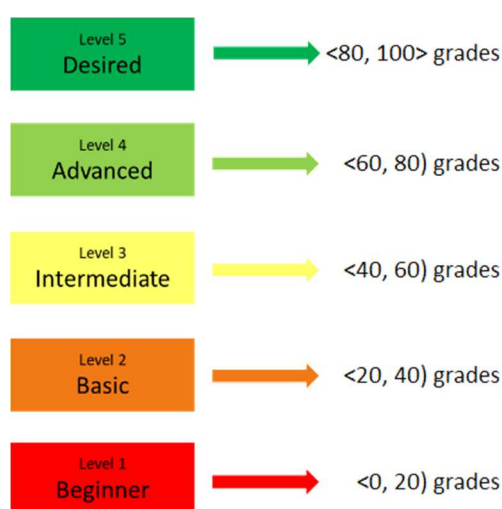


Figure 12 - Delimitation of maturity levels based on the Grade of Achievement



Each “Feature category” for the same NAP can be graded at a different maturity level. For example, a NAP can have a Basic maturity level for the “Communication feature category” but at the same time an Advanced maturity level for “Interoperability feature category”.

For each NAP, a **Total Grade of Achievement** is defined. That means that all grades from the various Feature categories are put together (using weighting factors), and a total grade will be calculated. The Total Grade of Achievement is computed as a weighted mean of individual Feature categories:

$$TG = \frac{\sum_i (W_i \cdot G_i)}{\sum_i W_i} \quad (2)$$

Where:

- TG ... Total Grade of Achievement (NAP total classification result defined in the scale from 0 to 100)
- i ... Feature category index (1 to 7)
- W_i ... Feature category weight (not necessarily defined as total weight = 1 but can be any other value)
- G_i ... Grade of Achievement for i^{th} Feature category (classification result for i^{th} Feature category defined in the scale from 0 to 100)

Gaps evaluation

For NAP **gaps evaluation**, a methodology is chosen that identifies KPIs with significant gaps, based on the following assumptions:

- a) **Occurrence of insufficient features** across NAPs in individual member states, i.e., when KPI value for a specific NAP is not reaching the minimum acceptable value ($ACC_{i,j}$ limit, see the Chap. 3.3). This is used to identify the features where many NAPs still have to catch up to the NAP minimum acceptable functionality.
- b) **Significance of relevant features**, i.e., weight of KPIs. This is used to identify the most important features for NAP harmonisation. The weighting of KPI features according to their relevance is based on expert assessment and set in NLKF (see Appendix 1).

The aim of the gap assessment is to propose measures to eliminate/mitigate the gaps and not to propose such measures for every KPI. Therefore, the purpose of gap assessment is to focus on the **most important gaps in the sense of high values** concerning assumptions a) and b).

To calculate the **occurrence of insufficient KPI values (1st assumption – ad a)**, it is enough to evaluate if a NAP KPI value is lower than the acceptable minimum, i.e., **the minimum acceptable value for interoperability ($ACC_{i,j}$ limit, see the Chap. 3.3)** that has been defined per each KPI. This is the acceptable limit value for NAP improvements and interoperability and can be the same as the $REQ_{i,j}$ (see the Chap. 3.3) or better value. All the actually valid values $ACC_{i,j}$ are listed in Chapters 3.4 to 3.10 for each KPI. The values are based on evaluation in NAPCORE task T2.1.2 in 2022 by the task expert team and based on a survey that has been prefilled by the MSs that are active in NAPCORE Task 2.1 and marked as “must have” resp. “nice to have” in Milestone 2.1, Tables 2 to 8. They are considered uniformly for both NAP types, i.e., “Metadata directory” and “Data platform”, with the fact that some KPI indicators are irrelevant for the “Metadata directory” type due to the NAP functions. The relevancy is seen in the table of $WMD_{i,j}$ values in Appendix 1 where irrelevancy of such KPIs for the “Metadata directory” NAP type is signed as “N/A”. It is possible that in the future, the minimum requirement for specific KPIs will be distinguished differently for these two types of NAP, but so far, such a distinction



has not been found necessary. The difference in NAP type is expressed with different KPI weights and their relevance (see below).

Furthermore, the fact that **the $ACC_{i,j}$ limit must be better than the $WORST_{i,j}$ value** (see the Chapter 3.3 for the definition) is taken into account, because otherwise it would not be possible to indicate a gap for the relevant KPI. Each KPI indicator was constructed in such a way that its certain level indicates the suitability of use for NAP. Thus, the worst KPI value must (considering the need to define such an indicator) always be insufficient. Therefore, for all KPI values, where a $WORST_{i,j}$ value has been considered as the minimum for NAP evaluation, a better value is required as a criterion for finding gaps, i.e., as a minimum acceptable value. This change is justifiable, because while evaluating NAPs in NLKF the current NAP status was evaluated with a $WORST_{i,j}$ value, now we need a higher goal for finding gaps in order to be able to improve anything.

The significance of the KPI (2nd assumption – ad b) is given by the weight of the KPI determined in the NLKF in 2022 (see the Milestone 2.1). For the needs of this task, it is not necessary to change the weights and they are kept fully equivalent to the actual version of the NLKF (see Appendix 1).

To evaluate the NAP gaps in relation to the assumptions above (ad a, b), five metrics were defined in the Milestone 2.2. As a resulting metric, the following **Metric 4** has been selected: **the weighted % of NAPs with non-acceptable KPIs**; the output is the percentage of NAPs where the value of the respective KPI does not reach acceptable minimum value, multiplied by the weight of the respective KPI. This metric allows combining both the assumptions, i.e., occurrence of gaps and the importance of KPIs, using a simple product.

For the metric, it is possible to determine the **ranking of all assessed KPIs** according to significance, from the highest output value to the lowest. The metric can be applied separately to NAPs by type (Metadata directory, Data platform), or to all NAPs regardless of type (this means that KPI values for both NAP types are included in the calculation).



Appendix 3. NAP KPI framework proposals for future changes

The KPI improvement suggestions collected from the self-assessment questionnaire as well as during the 2025 workshop are recorded, reviewed and categorised. Below follows a list of the “changes to be addressed” category. This will be the basis for the further development up to a NLKF 2026 release.

[text in square brackets] = source of input for a change or proposal:

- [Question2025] = remarks from the 2025 questionnaire or workshop presentation.
- [WSnotes2025] = notes from the 2025 workshop.
- [NEW 2024] = changes proposed after summer 2024.
- [Question2024] = remarks from the 2024 questionnaire.
- [Presentation2024] = remarks from the 2024 workshop presentation.
- [WSnotes2024] = notes from the 2024 workshop.
- Other sources are from the year 2023 or earlier.

1.1 Online availability

- [NEW 2024] In the future, we will ask also for % of availability over time.
- [Question2025] NL: Relation to Web Content Accessibility Guidelines (WCAG) 2.1, i.e., W3C Recommendation from DEC 12, 2024 (may be addressed at any KPI 1.x)
- [Question2025]: Test some other services: ES: Using a corporate installation of ICINGA; FI: Using Nodeping and Cstate – <https://status.digitraffic.fi/>
- [Question2025]: CZ: Suggesting a value percentage with overall downtime/total time for the whole time or for a period (month?) of monitoring where the minimum shall be, e.g. ,YES with availability check + >90 % uptime/all time
- [WSnotes2025] NL: challenge to get the numbers because the ministry server is “very faraway”

1.2 Compatibility with web browsers

- [Question2025] Test/suggest some other services: CZ: The compatibility is usually assured by using a framework, for us it is a readthedocs a+ sphinx – <https://docs.readthedocs.com/>
- [Question2025] FI: This seems a bit unnecessary, hoping web development is at least in most cases done browser independent
- [WSnotes2025] CZ: most websites are built in a “framework” which already provides this type of (compatibility) information.

1.3 Web performance – homepage load time

- [Question2025] CZ: Difference for simple NAPs and more complex ones? e.g., for more complex Metadata directories (data.europa.eu)
- [Question2025] DE: The two different tools deliver very different results [tools.pingdom.com]: Frankfurt: <200 ms; London: <300 ms; [uptrends.com]: Brussels: 1.0, Paris: 1.3; Amsterdam: 1.3; Dublin: 1.5
- [Question2025] DK: It is higher than 2 sec if tested outside Europe
- [Question2025] NO: Can this be automated? Each respondent gives the URL, and then central automated check

1.4 Responsiveness

- [NEW 2024] Suggested tool <https://responsivetesttool.com/> from 2024 was not working, maybe adding a link to some other
- [Question2025] CZ: Not sure how to deal with this in the evaluation; the design is fully responsive, but experiences some troubles due to “unwrappable longer constants”
- [WSnotes2025] CZ: maybe reconsider the values with a percentage of responsiveness



1.5 Web performance – Simplicity / usability

- [Question2025] CZ: Suggestion to add that metadata contact means accessing telephone + email + name
- [Question2025] CZ: Explanation how to reach 2.12 operations as an average ... suggestion to add example indication that it is / or it is not necessarily an integer value
- [Question2025] Denmark: Is it about search and filtering the results? Norway: We're assuming most users will start with search and have estimated typing 8 characters in the search field; after search, they might need to scroll the results, and then click on the correct entry

1.7 Web performance – Consistency and navigability

- [Question2025] AT: Sitemap is not modern
- [Question2025] CZ: Differentiate between a sitemap and side navigation panel, or mention that they are the same
- [Question2025] DE: Options #3 and #6 do not seem very beneficial
- [Question2025] DK: Existence of a hierarchical arrangement of web subpages: Is the use of "breadcrumbs" an example of this? ... e.g., "SharePoint" has this functionality
- [Question2025] PL: There is no logo however title on the menu "Homepage" with respective link
- [WSnotes2025] BE: Breadcrumbs were extracted last year but now is mentioned again as possible option. – to add a bracket to "e" option ("breadcrumbs" type also means hierarchical arrangement)
- [NEW 2024] Option "c" needs to be reformulated based on 2024 WS notes (search on the main page is sufficient) – "Availability of a search box on the main page (search means for navigation along the webpage and no data discovery)"

1.8 Support of commonly used languages

- [Question2025] BE: Split up in two questions: once one metadata record is not available in EN there is too big of an impact on the answer. Third option: names of the datasets → this means ALL datasets or some? In 4th option, it is specifically mentioned "all", here not.
- [Question2025] DK: Reformulate "Supports national language only, other than EN" to "Supports English and the national language"
- [Question2025] NO: Impossible to answer this question correctly. We do have functionality for translating everything to English (user interface + all text content), as in the last alternative. But in the reality, less than half the entries (rough estimate) are available in English, so answering one level worse than the best alternative seems more correct.
- [WSnotes2025] Add new levels with different grades of answers: some and all...

1.9 Security – technical

- [Question2025] CZ: Remove the middle option? As the certificate applies for the domain so for one domain the middle option is not actionable
- [Question2025] CZ: Expand this to user logging? With certificates?
- [WSnotes2025] Expand this KPI to the "user login" can be relevant about the ID of the users. Maybe a new specific KPI?

1.10 Security – providers verification

- [Question2025] CZ: Only NAP operator can enter and change data at the NAP. So, any change is submitted to the NAP operator via different means. Suggestion: add another option of providers' verification. We also need to verify the provider, so we trust his/her information.
- [Question2025] DE: There is a manual check and registration confirmation of each applicant done by the NAP Operator

1.11 Personal data protection



- [Question2025] CZ: All personal data stored at NAP is the one visible there provided by the data owners themselves to be published at the NAP
- [WSnotes2025] Add check box to see if public or not

1.12 Procedure for input of metadata or data to the NAP

- [Question2025] CZ: Misunderstanding the 1st option.
- [Question2025] HR: Available both 2 and 3 option.
- [Question2025] LV: Data providers can also use API for metadata input.
- [WSnotes2025] Re-think about “new values”
- [WSnotes2025] Data provider can add data using standardised metadata API (Is this in another category?)

1.13 Metadata access restrictions

- [Question2025] CZ: Add info that there could be optional registration for consuming newsletter or some information about the NAP
- [Question2025] DK: You must register/sign in to subscribe to a datafeed?
- [WSnotes2025] Review again the descriptions of the values

1.14 Authentication and security mechanisms for data upload

- [Question2025] CZ: Suggestion: this is not about the trust in the data BUT about the trust that such operation (upload) has been performed by the authorised user
- [Question2025] CZ: Option 3 means that anybody can if they have an upload link add or change data at NAP = this is a very bad option
- [Question2025] CZ: Expand last option by different types of security mechanisms
- [Question2025] DE: It is not beneficial to implement all offered options in parallel
- [Question2025] DK: NAP operator checks URL before publication of a metadata set
- [NEW 2024] 3rd option – to add “for data uploading”.

1.15 Authentication and security mechanisms for data download

- [Question2025] CZ: Expand last option by different types of security mechanisms; usually this means user log in/resource level authentication etc. via basic authentication / certificates ...
- [Question2025] DE: It is not beneficial to implement all offered options in parallel
- [Question2025] DK: You must set up a service account to get access to automated updates / real time data
- [NEW 2024] 2nd option – to add (e.g., data is sent by the NAP operator using e-mail).
- [NEW 2024] 3rd option – to add “for data downloading”.

1.16 Indication of provided data modification

- [Question2025] CZ: This still needs to be checked, the sub options under the 3rd option some of them should not be there, e.g., sub option 1 = indicates that date has changed inside some downloadable resource = THIS is NOT a viable indication of date modification
- [Question2025] CZ: For some static resources changing from time to time the metadata publication start date, or indication by different catalogue record is possible
- [Question2025] CZ: There shall be a distinction = if this is meant for static data more options are on the table than for dynamic data where changing the NAP metadata is not usable
- [Question2025] DE: The metadata of a data offer can indicate the last change of the dataset
- [Question2025] DK: The data manager can contact the subscribers via email and inform about changes; if we talk about access to live data, then the changes are what is being send using AMQP
- [Question2025] IT: The server indicates the last imported and validated resource

1.17 Data transfer optimization



- [Question2025] BE: Layman description needed for the different terms used
- [Question2025] BE: Only limited to data directly uploaded or data provided by link to other data repository?
- [Question2025] Compression FI: Use of gzip compression is mandatory
- [Question2025] LV: Is it relevant to MQTT protocol?
- [WSnotes2025] Is this a candidate to be placed in the “Interoperability category”?

1.18 API usage for data transfer

- No new or unprocessed proposals.

1.19 Web performance – (meta)data load time

- [Question2025] DE: Problem with different results of the two offered web services; [tools.pingdom.com]: Frankfurt: 229 ms; London: 209 ms; [uptrends.com] Brussels: 1.2, Paris: 1.2s; Amsterdam: 1.2s; Dublin: 1.7s; Washington: 1.01 s, Tokyo: 2.52 s, Sydney: 2.98 s
- [Question2025] Can this be automated? Each respondent gives the URL, and then central automated check

1.21 Metadata about data modification

- [Question2025] CZ: “update frequency” and/or “information about the next version” can be used

2.1 Support to users to register or add data/metadata

- [WSnotes2024] Unfold this feature in more KPIs (i.e., dividing adding data/metadata)
- [Question2025] NO: Change alternative to "FAQ or other documentation in national and English language."

2.2 Related services monitoring process

- No new or unprocessed proposals.

2.3 KPI deleted in 2025

- No remaining unprocessed proposals.

2.4 NAP promotion channels

- DK: Link to det dissemination document made by H3. This will help people remember that it is there and perhaps even see what has already be made.
- [WSnotes2025]: H3 is secret document – add that link as a reference

2.5 KPI deleted in 2025

- No remaining unprocessed proposals.

2.6 Contact details

- No new or unprocessed proposals.

2.7 Mass notifications – data providers

- [Question2025] “BE: Does a mass notification include an email (automatically?) sent out to all data providers (we have their email addresses stored in a DB so can do this automatically).”
- [Question2025] “CZ: There are just TWO providers, both on state/agency level one is the NAP Operator the National Traffic Information Centre with 24 of 25 catalogue records the other is Ministry of Transport with 1 of 25 catalogue records. There is no need for the mass notification.”



2.8 Mass notifications – data consumers

- No new or unprocessed proposals.

2.9 Monitoring and Evaluation

- [Question2025] BE: Qualitative feedback is quite a generic term, does a one shot count (e.g. during a workshop for data-users?) or does this has to be on a regular basis with an automated process?
- [Question2025] LV: What is considered by success and impact of the NAP?
- [WSnotes2025]: Self-promoting of the users is missing somewhere; France has a blog for users' response how they use the data, make probably a new KPI

3.1 Free-text Search

- [Question2025] CZ: I do not understand the 3rd option, please provide example, recast and expand it. It could be - implicit or explicit use of operators (AND, OR)- use of wildcards (asterisks, question marks etc.)- search within categories (dataset, organizations, all)- showing the part of the text that matches the query- additional filtering of the search query results"
- [Question2025] DK: Does your NAP offer a free text search option?
- [Question2025] DK: Does your NAP support the option to filter your search result?

3.2 Filtering options

- [Question2025] CZ: how does the filtering works? is it part of the free text search limited to datasets only? is it something else? KPIs 3.1 and 3.2 are mixed, they need to be separated.

3.3 Provision of machine-readable metadata

- [Question2025] CZ: there shall be 2nd option added: - Availability of machine-readable metadata as part of the relevant HTML webpage (e.g. of a catalogue record), no provision of a separate machine-readable metadata file or provision of XHTML markup webpage document.
Or something along this.
We need to distinguish that the 1st option means that there is literally nothing relevant about the data set said on the webpage apart from name and link.
NLKF 2025 comments received.xlsx .

3.4 Map-based search

- [Question2025] BE: does a filter on geographical regions (NUTS2) count? Studies have indicated they might be more appropriate for describing geographical scope than a user drawing a region on a map him/herself
- [Question2025] CZ: the option "data are displayed on the map" has nothing to do with the map-based search. This needs more clarification, it could be changed to ****location-based search****, could be then:
 - map based, e.g. in the map I select a bounding box of coordinates, this means that the dataset catalogue records MUST have information about the geographic location available.
 - predefined label-based search, e.g. NUTS codes, this means that the dataset catalogue records MUST have information about the covered NUTS units available.

4.1 IT services

- No new or unprocessed proposals.

4.2 Content and metadata

- For 2025: From gaps and "actions needed" evaluation: EU-wide commonly accepted procedure for content and metadata quality assessment and maintenance, further development of a common data



quality framework for assessment, implementation of processes and responsibilities for data quality assessment and maintenance. Assessment methods from the QFs under development in T3.2 may indeed impact this KPI. We can consider WG3's outputs for the upcoming iteration.

- [WSnotes2024] Consider whether NAP itself could verify compliance with mobilityDCAT-AP, Petr Lubrich should have more information.
- [WSnotes2024] Address more details – also check the format, whether the data is in the format stated.
- [Question2025] “No backwards compatibility”
- [Question2025] “Should we ask about data governance? Or how does the NAP support good data governance?”
- [WSnotes2025]: DK: how to support data owner, there are not only machines; DK gave some examples of data governance

4.4 Metadata maintenance frequency and evaluation

- [Question2025] “What about as soon as we are requested to change it?”
- [WSnotes2025]: add “on request”, or something similar

4.5 Data content maintenance

- [Question2025] Even in the metadata directory, you can check data available elsewhere against the known structure
- [Question2025] For DATEX II publications, the offered data is validated against the mandatory DATEX II schema
- [Question2025] For a sample of datasets, we check the conformity with the data specification (e.g., DATEX II)
- [Question2025] Automatic Validation – How? Which tools?
- [Question2025] All data provided is checked for correctness
- [WSnotes2025]: Italy: contribution of DCAT-AP version 3.0 will now allow easier maintenance
- [WSnotes2025]: PL does this by specifying that it will be in DATEX II

5.1 Documentation & description of datasets

- [Gaps and actions needed] agree on a common framework how to describe datasets and when possible or available provide templates or examples
- [Gaps and actions needed] provide guidelines on how to describe and document datasets published on NAPs
- [Gaps and actions needed] require data providers to provide documentation describing datasets according to provided framework or template
- [Gaps and actions needed] to carry out an assessment of what is not included in the Metadata Catalogue/mobility DCAT-AP (and cannot be included due to complexity...) and indicate those aspects as relevant for the technical description of the datasets
- [Question2024] “Miss the option: It is up to the data provider to provide the supporting material.” For 2025
- [Question2025] Is it up to the data providers to provide the links to the technical references of their dataset formats? Or should this be considered as a role for the NAP itself?
- [Question2025] Metadata fields are available for some of terms mentioned, but are not mandatory
- [Question2025] these kinds of documentation are available, but not provided for all datasets
- [Question2025] Schemas can be JSON also

5.2 Classification of datasets

- [Question2025] What if I am partially compliant with mobilityDCAT-AP (e.g., have something from the CMC)?
- [Question2025] Question would be clearer with some samples; last option is grammatically strange



- [WSnotes2025]: If partially, then probably to answer the higher value; see also what the Norwegians are writing in the questionnaire

5.3 Quality indicators for datasets

- [Q before WS – Czech Republic] this question needs more elaboration. We do provide metadata element: "quality", which has some textual elaboration of how the quality is achieved. BUT there is no "indicator" per se.
- [Q within WS – Belgium] not clear: During workshop Porto the last option was described as 'having a metadata field where the data provider can describe the quality of the dataset'. For this reason, this value was chosen, although the NAP does not publish or suggest itself quality frameworks.
- [Question2025] Is provision of textual field where the provider will write "my data is fine" really better then NO option??

5.4 Data visualization

- [Question2025] Assuming the WMS is valid, then anything can be visualised by through party through the NAP
- [Question2025] Metadata visualization should come first then Data visualization
- [WSnotes2025]: Reverse the order in the questionnaire, first 5.5, then 5.4
- [WSnotes2025]: We are providing WMS as one of the options – but visualization is no longer a NAP function, it is done by everyone
- [NEW 2024]: There is a higher difficulty to obtain this functionality for metadata directory because reading external data. To discuss different weight (lower for metadata directory) for comparison of NAPs across different types. We remain with the same weight in 2024 because comparisons are usually made between NAPs of the same NAP type.

5.5 Metadata visualization

- [WSnotes2025]: Reverse the order in the questionnaire, first 5.5, then 5.4
- [WSnotes2025]: We are providing WMS as one of the options – but visualization is no longer a NAP function, it is done by everyone

6.1 Metadata specification

- [Presentation2024] For 2025: Evaluate if there is a common procedure applied to display data modifications in DCAT-AP and dealt with at server level.

6.2 Harvesting functionalities

- [WSnotes2024] ask not only if they have it, but if it's also used
- [WSnotes2024] There will be an extension, discussed repeatedly at the workshop – not just the possibility, but if this is used as input.
- [Question2025] We think that mobilityDCAT-AP should be mentioned here.
- [Question2025] We use a SPARQL endpoint on top of the mobilityDCAT implementation
- [Question2025] Better to also ask if harvesting is up and running rather than only consulting the theoretic availability of these interfaces
- [Question2025] This should be extended to two KPIs:
 - Having the ability to harvest other portals with options regarding the availability of a guideline and information concerning allowed formats and protocols
 - Having the ability to be harvested by others (including options regarding availability of a guideline and information concerning allowed formats and protocols)
- [WSnotes2025]: Belgium has been giving the same comment for about three years, please look at it and try to include somehow



- [WSnotes2025]: Netherlands strongly recommends to implement it, then that data is available faster, it improves quality; but it depends on the case whether it really helps in a specific country
- [WSnotes2025]: Petr (CZ) proposes to split this KPI up to distinguish that two, as Petr suggests

7.1 Data reuse – NAP

- [Question2024] Available only for some datasets.

7.2 Data reuse – data provider

- [From WG2.4.2] Feature 7.2 “Data license” will be affected. By publishing data using the concepts described here, the data provider agrees to a certain set of terms and conditions, these should be easily accessible on the NAP: The scoring under the above mentioned KPIs might also depend on how tightly the concepts described in the demonstrator is integrated into the NAP. In essence there are three levels of integration: 1: No implementation of cross-border data sharing solution; 2: Loose integration to an existing Interchange; 3: Tight integration into your NAP by making the key components of the architecture part of the NAP. In order to achieve a tight integration, the NAP would need: · An AMQP message broker or some mechanism for publish/subscribe architecture; · Some mechanism to provide both the Basic and Improved Interface; · The REST-API created in this demonstrator; · An implementation of the webpage created in this demonstrator.
- [Gaps and actions needed] agree on a common framework how to describe terms and conditions and when possible or available provide templates or examples
- [Question2024] Available only for some datasets.

7.3 Operational procedure information

- [Gaps and actions needed] to apply EU template to their local situation and create own national documentations for governance, registration process, data provision, etc.
- [Gaps and actions needed] to provide a template for NAP Operators on governance aspects, requirements concerning processes and responsibilities for data quality assessment and maintenance should be harmonized among the NAP Operators
- [Question2025] AT: Also “Explanation of principles and manual how to use the NAP”
- [Question2025] LV: Also “Help page”
- [Question2025] FR: Also “Tools to Validate the Quality of Your Data; blog: Reuser's words (<https://blog.transport.data.gouv.fr/>); Metadata guidance; How to create an account; Add/join an organization; ...
- [WSnotes2025]: There is some feedback from users, link to the French site; could be expanded to give some examples for each KPI
- [WSnotes2025]: Netherlands are making some system where users are registered and what data they use for what and the possibility to search full-text for which application what data could be useful
- [WSnotes2025]: In general we agree to make 2 kinds of reactions in NLKF - one for an example and one for an update

7.4 Dataset indicators

- [Question2025] BE: provision of information of assessment is done; but this is different from information on the self-declaration (not publicly visible). Not in all countries the assessment is done based on a self-declaration so the second option should be re-worded.
- [WSnotes2025]: Belgium discusses different variants of self-declarations at WG5, Belgium has a separate procedure for self-declarations

7.5 Compliance assessment

- [Question2025] BE: Self declaration is not the basis for assessment in BE and other countries.



- [Question2025] CZ: Actually a submission of signed self-declaration is a condition of publication of data at NAP.
- [Question2025]: They don't detect the values, so they can hardly judge if the declaration is consistent
-> need to ask WG5 how they would modify it

7.6 Association of published datasets with Delegated Regulations.

- No new or unprocessed proposals.

