



Harmonized NAP Architecture

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Agenda

- Overview
- Introduction to NAP reference architecture
- NAP functionalities
- NAP typologies
- Question & Answer Session (Collected via Slido)



Questions collection

Open Slido via Mobile phone or Laptop

Place your question into Slido

The questions will be answered in the Q&A Session



<https://SLIDO.com#1858704>



NAP Status Quo

- 27 Member States
- One or More NAP(s) per Member State
- Different types and functionalities of NAPs
- **1 Architecture - Is this possible?**



National Perspectives

Legal objectives and role defined by Delegated Regulations of ITS Directive 2010/40/EU:

Member States shall manage a [national access point to the data referred to in paragraph 1](#), which regroups the access points established by public and/or private road operators and/or service providers operating on their territory.

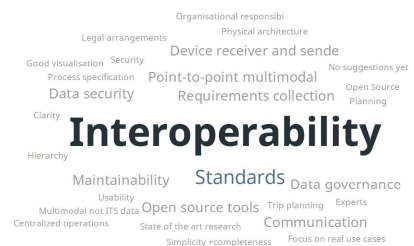
3. These data shall be accessible for exchange and reuse by any user of road safety-related minimum universal traffic information:

- (a) on a [non-discriminatory basis](#);
- (b) within the Union irrespective of the Member State of establishment;
- (c) in accordance with access rights and procedures defined in Directive 2003/98/EC;
- (d) within a timeframe that ensures the timely provision of the information service;
- (e) through the [national access point](#).

DR Safety related Data



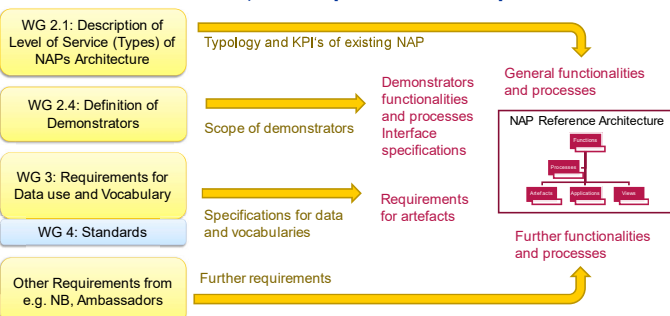
Expectations from a NAP reference architecture in NAPCORE



Survey within NAPCORE on 02.2022



NAPCORE - Project Input Landscape



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

The NAP reference architecture defines the minimum needed functionalities, processes and interfaces to enable a harmonized exchange of information (Meta Data and Data) for an EU wide reuse of data to create the basis for an EU-wide mobility data space.



What is an ITS Architecture

- view of how an Intelligent Transport System (ITS) implementation will look from a system design perspective
- a definitive and consistent framework to guide the planning and deployment of ITS.
- a collection of ITS architecture outputs:
 - *i.e. common requirements, interface / component specification, cost benefit study, communication requirements ...*



Benefits of an ITS architecture

- Detailed description of an ITS System on a level which makes a functional system creation and a harmonization possible.
- Improve specification of a system by identifying gaps and harmonization needs
- Easy including of new systems by using the technical system description



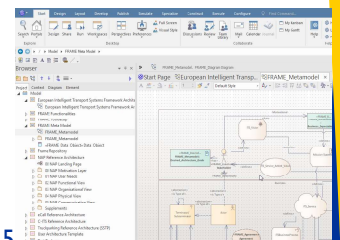
Use cases and benefits from NRA

- Definition of NAP types and of specific terms allow to reach common understanding when referring to NAPs
- Harmonised data type definitions from Delegated Regulations helps with implementation and sets expectations of NAP users
- Agreed upon dataset descriptions (i.e. metadata) including guidelines for dataset naming and use of keywords greatly enhances search experience of NAP users (especially on combined NAPs)
- Specification of technical interfaces allows service providers to reach with one framework data from multiple NAPs
- Cost and benefit analysis helps to plan implementation additional NAP features with biggest impact on users



Tool for ITS Architecture

- Enterprise Architect
- Very Flexible in combining different elements
- UML basic modeling language
- Wide spreaded in use – Big Community
- Well known in ITS sectors
- Used by DATEX II, WG 4.4, WG 5



Planned Results

- Modular Concept for NRA
- Well defined minimum functions, processes and artefacts
- Well defined functions, processes and artefacts to enable demonstrators

Artefacts (outputs):

- have textual description and
- specification



Harmonized NAP Architecture

Basic functions and minimum functions for NAP interoperability

NAP Basic / Minimum /Advanced Functionalities

Basic legal functionalities

F1: Create central non-discriminatory free platform
F2: Provide information for accessibility

Minimum functionalities

F1: ?
F2: ?

Advanced functionalities

F1: ?
F2: ?



NAP interoperability functionalities

Vision:

The NAP reference architecture defines the minimum needed functionalities, processes and interfaces to enable a harmonized exchange of information (Meta Data and Data) for an EU wide reuse of data to create the basis for an EU-wide mobility data space.

What are minimum functions, processes and artefacts to achieve this vision?



NAP Minimum Functionalities – Achieving Process

Survey to review existing functionalities and structure it to sections, further to collect expectations for interoperability from NAP Operators

-19 NAP Operators answered

NOW: Get your experts knowledge on which functionalities are minimum functionalities



Survey Results: NAP interoperability expectations (I)

Austria:

Exchange of meta data based on *harmonized data format*

Finland:

The *exchange of metadata* according to *common metadata profile* is the key.

Greece:

At a preliminary stage, NAPs should be able to exchange metadata enabling cross-border visibility and *discoverability of accommodated/available data resources*.



Survey Results: NAP interoperability expectations (II)

Croatia:

From the Croatian point of view we see that NAPs are starting to connect, and we see that the NAPCORE project will additionally help to *harmonise the data and metadata exchanged*.

Germany:

Common metadata scheme and metadata exchange mechanisms between NAPs

Public relations, community building, stakeholder activities

Slovenia:

Wish for more cooperation between NAPs.



Survey Results: NAP interoperability expectations (III)

Czech Republic :

exchanging metadata via standard metadata harvesting functionality. We shall focus on *aggregative (hierarchical) metadata processing*.

Netherlands :

With a *trust framework* where *parties get certified*. Each party then can *check the certification and trust status* of other parties before handing out data or metadata. With *metadata search api's* as portals to other NAP's. A federated system of NAPs basically, with a central trust framework, using the data space ideas from IDSA.



Find minimum interoperability expectations - Process

- Showing Results of survey
- Collect your expertise via Slido on your Smartphone

Please Scan the barcode or open the website



<https://SLIDO.com/#1858704>

Find minimum interoperability expectations - Overview

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- Support Activities
- Storage Provision
- User Management
- Interfaces
- Quality Checks
- Data, Service and Meta Data functionalities
- Integration and Processing



Support Activity

- Is there a textual support like a FAQ (Questions & Answers) section or direct explanation text within your NAP?
- Is there a person who can be asked via e-mail or hotline?

Existing types: e-Mail, Form, Telephone

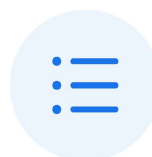
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■ Yes ■ No ■ Partially



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What support functionality is a minimum functionality of a NAP?



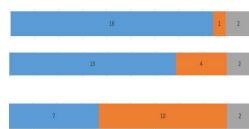
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Storage abilities

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- Does your NAP provide data storage capacities for metadata?
- Does your NAP provide data storage capacities for static data?
- Does your NAP provide data storage capacities for dynamic data?



Comments:

- Regarding real time data, only APIs will be supported.
- dynamic data are usually forwarded from data providers to data users via a brokering mechanisms (push/pull HTTPAPI), but no storage within NAP
- data are stored at providers distribution interfaces



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What storage functionality is a minimum functionality of a NAP?

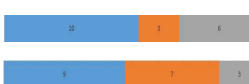
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User Management

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- Does your NAP have a Publisher Management with the aforementioned processes?
- Does your NAP have a User Management with the aforementioned processes?



Comments:

- only admin
- users are not registered in any way by the NAP
- It covers the following processes: registration, change management, and GDPR conformity (at a platform level)
- The process of publishing is manual and all the mentioned topics are considered.



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What registration processes are minimum functionalities of a NAP?

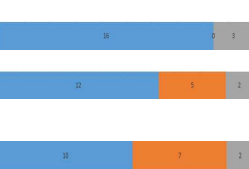
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Availability

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- Does your NAP have a publicly available (no restrictions) website with data sets/services information?
- Does your NAP have Publishers website for entering data about themselves and their datasets/services (metadata)?
- Does your NAP have a User website for entering data about themselves?



Comments:

- Possible through the administrator
- no need for that, just a metadata website.
- If this question is about citizens (normal users) then this is non available.



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What registration processes are minimum functionalities of a NAP?

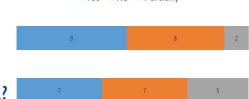
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API (Application Programming Interfaces)

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- Does your NAP have a publicly available API (machine to machine interface) for accessing / (harvesting) Meta Data (as a response to a query)?
- Does your NAP have a public available API for Data?



Comments:

- Only for metadata
- On the roadmap
- No hosting of data, so not applicable
- Payload data at the brokering interface are only accessible for subscribers, thus no real "public" data



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I having an API a minimum functionalities of a NAP?

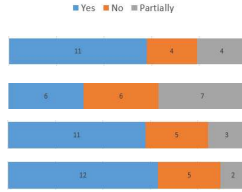
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Meta data structure & content

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- Does your NAP structure data as required by EU-EIP coordinated metadata catalogue?
- Does your NAP structure data as required by DCAT metadata catalogue?
- Are keywords for data categories predefined?
- Are Metadata provided in a multi-lingual (more than 1 language) way?



Comments:

- aligned to DCAT-AP but not really compatible
- from CMC
- Croatian and English; Greek & English; cs and en
- in progress
- Users can also add new keywords
- Metadata fields are provided in both national and English language, while metadata values are provided only in the English language.
- There is an online document that provides guidelines for metadata creation (incl. tags and keywords).
- The structure can be expanded if needed.

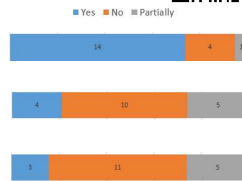


Quality Checks

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- Does your NAP provide a basic (e.g., mandatory fields are filled in) quality check of metadata?
- Does your NAP provide an advanced (e.g., check of correctness of text descriptions, availability of links) quality check of metadata?
- Does your NAP or the NAP Operator do quality checks (structure, content) of provided static or dynamic data?



Comments:

- mandatory fields of Delegated Regulation
- this is done manually by the NAP operator when receiving information about the dataset from the provider.
- in progress; Currently being implemented

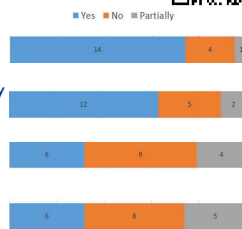


Meta Data provision

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- Does your NAP provide full text search of the NAP (for data and data services)?
- Does your NAP provide filtering of search results by metadata keywords?
- Does your NAP provide metadata in common form (DCAT rdf description) for data sets / services for machine-to-machine processing?
- Does your NAP provide a legal framework (licence model or contract) for use or reuse of Meta Data?



Comments:

- We support full text search over metadata.
- only for reuse of the data. metadata are in public domain
- Only for one particular dataset.
- For datasets.

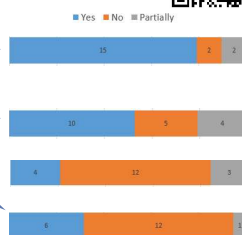


Static Data Provision

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- Does your NAP provide traffic and travel static data as "links"? I.e., downloadable content is stored somewhere else?
- Does your NAP provide traffic and travel static data as a downloadable resource stored within the NAP?
- If your NAP holds the data, does it take over the ownership and responsibility for the data?
- If your NAP takes over the ownership and responsibility for the data, does it provide a legal framework (licence model or contract) for its use or reuse?



Comments:

- It is possible but there is another system collecting these data which will be made available through APIs (Links)



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Are using common description methods a minimum functionalities of a NAP?

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Quality checks methods as minimum functionalities of a NAP?

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Which meta data providing methods are minimum functionalities of a NAP?

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Data providing methods are minimum functionalities of a NAP?

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Dynamic Data Provision

- Does your NAP provide traffic and travel dynamic data as "links"? I.e., downloadable content is stored somewhere else?
- Does your NAP provide traffic and travel dynamic data as a PULL resource **operated by NAP**?
- Does your NAP provide traffic and travel dynamic data as a PUSH resource **operated by NAP**?
- If your NAP holds the data, does it take over the ownership and responsibility for the data?
- If your NAP takes over the ownership and responsibility for the data, does it provide a legal framework (licence model or contract) for its use or reuse?

<https://SLIDO.com/#1858704>



■ Yes ■ No ■ Partially



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Dynamic data providing methods are minimum functionalities of a NAP?

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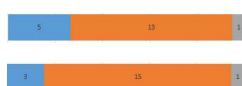
Interface Publisher & User

- Does your NAP provide a data exchange interface between publisher and user?
- Does your NAP provide a contract or license conclusion interface to publisher and user (clearing house functionality)?

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■ Yes ■ No ■ Partially



Comments:

- We keep track if license agreements (as defined by data provider) are accepted by the data user,
- If user not select anything CC 4.0 is chosen.

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Is providing a interface between publisher and data consumer a minimum functionality of a NAP?

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Meta data processing

- Is your NAP able to integrate (harvest / process and visualise) Meta Data from external sources?
- Is your NAP able to automatically process external Meta Data (i.e., send to and email, via API)?

<https://SLIDO.com/#1858704>



■ Yes ■ No ■ Partially



Comments:

- able but not done
- The technical support exists.
- on our roadmap

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Is Meta data processing a minimum functionality of a NAP?

① Start presenting to display the poll results on this slide.

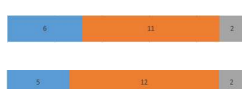
Static data processing

- Is your NAP able to integrate (harvest / store and visualise) Static Data from external sources?
- Is your NAP able to receive and automatically process external Static Data (i.e., sent by email, via API)?

<https://SLIDO.com/#1858704>



■ Yes ■ No ■ Partially



Comments:

- we want to work federatively, so this is not our ambition. However, there are other solutions to visualize data, which still can be done without storing the data (WMS). We do want to implement this. The technical support exists.
- The NAP has the ability to harvest, host & visualise data from external sources (i.e. a scooter company, bike sharing company)

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Are Static data processing a minimum functionality of a NAP?

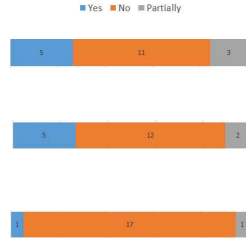
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Dynamic data processing

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- Is your NAP able to integrate (harvest / store and visualise) status dynamic data sets (such as travel time) from external sources (usually provided as a snapshot)?
- Is your NAP able to integrate (harvest / store and visualise) event related dynamic data sets (such as unplanned events) from external sources (usually provided as a delta message)?
- Is your NAP able to provide service interface (API) for multimodal connection search based on data linked or hosted by the NAP (including query federation)?



- Comments:
- Via event based messages AMQP1.0 event
 - On some geo-datasets
 - The NAP has the ability to harvest, host & visualise data from external sources



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Is dynamic data processing a minimum functionality of a NAP?

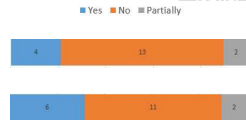
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Raw data processing

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- Does your NAP process raw data (from different data sources) before providing it to end user?
- Does your NAP provide data visualization (data could be hosted elsewhere on at the NAP)?



Comments:

- The format that are uploaded vs. the format that are published can be different, but the data is still the same.
- Some data is processed, some is not.
- We have visualization pre-view of geodata in pipeline



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Is raw data processing a minimum functionality of a NAP?

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Final Question

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How easy would it be to implement a pre defined Meta data structure?

How easy would it be to implement a API using DCAT-AP for accessing Meta Data?

How long would you expect to make all NAPs interoperable?



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Final functionality questions

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NAP Typology

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31.03.2023



NAP Typology miscommunication

- Hi I have a database NAP.
 - Yes, and I have weblink repository.
 - And I have data store,
 - They have metadata store.
 - We have register and have broker....
- Wait...
- What do we have?
 - Is it different from "mine"?
 - Is everything covered?



NAP Types

- The "labels" are undoubtedly beneficial in communication and harmonization
- There is however too many different NAP types "labels" coming from working documents and legal frameworks.
- Many different labels carry the same meaning, while some contradict how the term is used in IT
- IT labels are difficult to be assigned to a NAP "type", levels and functionality could be used instead.
- **We have approached NAP type topic methodically**
 1. Identification of existing labels (from different sources),
 2. Analysis of the meaning and respected IT definitions of the term (existing definition in contradiction?)
 3. Selection of candidates for harmonised NAP type terminology



NAP types "What do we have" (1/4)



Directive and delegated regulations about the NAP

- Access point is a digital interface where *data*, together with the corresponding metadata, are made accessible for re-use to data users, or where the *sources* and metadata of these data are made accessible for re-use to data users;
- The NAP shall constitute a single point of access for data users to the data, regroup the individual access points of service providers/data owners, should be list hand over points...
- NAPs shall provide discovery services to data users, i.e. search using metadata
- The access point can take the form of a **repository**, **registry**, **web portal** or **similar** depending on the type of data.



NAP types "What do we have" (3/4)

EU-EIP project (A Single Point of Access, 2015)

- (SPA) is a central point where traffic information can be found, (...) Purpose of the SPA is to make data sources and information easily accessible for Information Service Providers who can then distribute it to the end-users.
- Classification of SPAs associated with a quality criteria:
 - **basic SPA** (Website with links to data providers),
 - **medium SPA** (Website with links to data providers + meta data)
 - **advanced SPA** (Website with links to data providers + meta data + database).



NAP types "What do we have" (2/4)

NAPCORE implementation among member states

- WG2 survey yielded following "NAP Type labels" (no distinction): **data platform**, **data directory**, **database**, **data broker**
- WG2 KPI and LOS used **data platform**, **data directory**
- WG3 survey used: "What type of NAP do you operate for each Delegated Regulation" with: **database**, **web-link repository**
 1. **Most**: metadata description with links to the data stored elsewhere.
 2. **Some**: limited storage functionality of mainly static or semi static data together with metadata description and links to data stored elsewhere
 3. **Very few**: the data are retrieved by NAP and made available to subscriber through NAP interface



NAP types "What do we have" (4/4)



10 different labels

data directory,
web-link repository,
data registry,
data repository,
data broker,
data warehouse,
data centre,
database,
data platform,
data space.

3 NAP funct. levels:

basic SPA,
medium SPA,
advanced SPA



Group I: metadata portals

Functionality: metadata and discovery services

Labels: data directory, web-link repository,
data registry, data repository



NAP types "proper" definitions (1/10)

(meta)data directory

- **Online definition:** The data directory provides an **overview** of the data managed by each service unit including the master data managed by the service unit, and the data that is replicated from the master data of another service unit.
[\[https://www.sciencedirect.com/topics/computer-science/data-directory\]](https://www.sciencedirect.com/topics/computer-science/data-directory)
- **Working definition:** It provides metadata (description of data sets and data sources in a predefined way) and discovery services to end user or data service provider. Is not involved in the data exchange process between data providers and data consumers [WG2, KPI].
- **Comments:** used in WG3 survey; we have a solid definition
- **Key feature:** Storage & provision of metadata (including search/discovery services)

data directory, web-link repository, data registry, data repository, data broker, data warehouse, data centre, database, data

NAP types "proper" definitions (2/10)

web-link repository

- **Online definition:** NO concise or useful online definition.
- **Working definition:** A platform/website enabling decentralized data accessibility through web-links to external resources. It may or may not provide metadata. [WG2, KPI].
- **Comments:** used in WG3 survey to indicate the type "(meta)data directory"; initially in the ITS Action plan discussion, where NAPs were referred to as SPAs, the web-links meant just "Website with links to data providers" without metadata and "discovery service" (so called basic SPA). Used with different meaning, another label exists.
- **Key feature:** Indexing of several (external) data resources.

data directory, web-link repository, data registry, data repository, data broker, data warehouse, data centre, database, data

NAP types "proper" definitions (3/10)

data registry

- **Online definition:** A data management middleware connected with one or more external databases serving as a push/pull API or enabling data import and export (<https://dvc.org/doc/use-cases/data-registry>).
- **Working definition:** same as (meta)data directory
- **Comments:** referred to in DRs; conflicting online definitions; same functionality as (meta)data directory; use either this or that.
- **Key feature:** depends on the adopted definition
 - same as (meta)data directory: storage and provision of metadata
 - on-line: interface with external databases with aim of facilitating data reusability.

data directory, web-link repository, data registry, data repository, data broker, data warehouse, data centre, database, data

NAP types "proper" definitions (4/10)

(meta)data repository

- **Online definition:** Metadata repositories contain **information** about the data model that store and share this data. They **describe** where the data source is, how it was collected, and what it signifies. It may define the arrangement of any data or subject deposited in any format. (<https://www.astera.com/type/blog/data-repository/>)
- **Working definition:** same as (meta)data directory
- **Comments:** referred to in DRs, many online definitions, same functionality as (meta)data directory
- **Key feature:** Storage & provision of metadata (including search/discovery services)

data directory, web-link repository, data registry, data repository, data broker, data warehouse, data centre, database, data

Cluster I summary

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- All the labels, **metadata directory**, **web-link repository**, **metadata registry**, **metadata repository**, have "generally" same meaning; it is best choice to just use one of the labels based on the "best fit for purpose" and "personal preference"

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- Q1: do you support our conclusion above? [yes/no]
- Q2: Rank terms metadata directory, web-link repository, metadata registry, metadata repository by preference [places 1. 2. 3.]



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NAP Type 1

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Group II: data portals

Functionality: metadata and discovery services, data hosting, advanced features (data processing, brokering, enhancing, visualization)

Labels: data directory, web-link repository, data registry, data repository



NAP types "proper" definitions (5/10)

data broker

- **Online definition:** Existing ones mainly refer to business entities
- **Working definition:** Data are exchanged **through** the NAP to any interested data consumers who have subscribed to the respective data feed via a harmonized interface. Data remains unchanged so that broker is not responsible for any content provided. Data are stored at providers endpoints, data broker **interconnects** the provider and consumer.
- **Comments:** referred to in WG2 survey; functionality of a data space; possibly not a good candidate for single definition
- **Key feature:** Interconnection of the endpoints of data providers and data consumers via a single interface

data directory, web-link repository, data registry, data repository, data broker, data warehouse, data centre, database, data

NAP types "proper" definitions (6/10)

data warehouse

- **Online definition:** A data warehouse centralizes and consolidates large amounts of data from multiple sources. Its analytical capabilities allow organizations to derive valuable business insights from their data to improve decision-making. Over time, it builds a historical record that can be invaluable to data scientists and business analysts. Because of these capabilities, a data warehouse can be considered an organization's "single source of truth." (<https://www.oracle.com/database/what-is-a-data-warehouse/>)
- **Working definition:** -
- **Comments:** not referred to (not used); several definitions; highly complex; may be national traffic information centre, cannot be NAP (ownership issue)
- **Key feature:** Integration/consolidation of data flows from various sources and creation historical records

data directory, web-link repository, data registry, data repository, data broker, data warehouse, data centre, database, data

NAP types "proper" definitions (7/10)

data centre

- **Online definition:** A data centre is a physical facility that organizations use to house their critical applications and data. A data centre's design is based on a network of computing and storage resources that enable the delivery of shared applications and data. The key components of a data centre design include routers, switches, firewalls, storage systems, servers, and application-delivery controllers. (<https://www.cisco.com/c/en/us/solutions/data-center-virtualization/what-is-a-data-center.html>)
- **Working definition:** -
- **Comments:** not referred to (not used); it's a building! Not usable
- **Key feature:** a facility

data directory, web-link repository, data registry, data repository, data broker, data warehouse, data centre, database, data

NAP types "proper" definitions (8/10)

database

- **Online definition:** A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system (DBMS). Together, the data and the DBMS, along with the applications that are associated with them, are referred to as a database system, often shortened to just database. (<https://www.oracle.com/database/what-is-database/>)
- **Working definition:** -
- **Comments:** referred to in DR; it's a feature not the NAP; has a specific meaning; here used as to refer that NAP stores some data.
- **Key feature:** Data storage following a structure

data directory, web-link repository, data registry, data repository, data broker, data warehouse, data centre, **database**, data

NAP types "proper" definitions (9/10)

data platform

- **Online definition:** A data platform is an integrated software solution that aggregates information in a cloud-based hub, where it can be governed, accessed and delivered to users, applications and/or other technologies. By consolidating information from disparate sources, a data platform enables more collaborative decision-making within an organization. (<https://www.cognizant.com/us/en/glossary/data-platform>)
- **Working definition:** This type of NAP provides real data or data services to data user or data services through the NAP. This could be via download, API or other data transfer channels including data usage contracts.
- **Comments:** used in WG2 KPI, used as to refer that NAP stores some data.
- **Key feature:** Integration/consolidation of data from different sources

data directory, web-link repository, data registry, data repository, data broker, data warehouse, data centre, database, **data**

Cluster II summary

<https://SLIDO.com/#1858704>



- Labels, **data centre**, **database**, are by our conclusion not fit for purpose, carry different meaning from the IT and shall not be used.
- Labels, **data broker**, **database**, specify a functionality rather than NAP type.
- Label **data warehouse**, is far too complex to be a NAP, rather they are TMC or TIC.
- The labels in Cluster II, excluding the "not fit for purpose", could be described by general category "**data platform**"

SLIDO

- Q3: Do you support our conclusion on not using term database? [yes/no]
- Q4: Do you support our conclusion on not using term data centre? [yes/no]
- Q5: Do you agree that terms data broker, database are more a functionality than a NAP type? [yes/no]
- Q6: Do you agree to use generic term **data platform** as a group name? [yes/no]

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NAP Typ 2

① Start presenting to display the poll results on this slide.

Cluster II summary - continuing

<https://SLIDO.com/#1858704>



- There might be a need for some highly complex NAPs as a 3rd option, it is unclear how to define it though. (**there is no evidence of such NAP**)
- One of the option is to pick one of the complex labels "data warehouse" (broker?) as 3rd type or just use levels:
 - **Level1** (basic): metadata + discovery services
 - **Level2** (medium): level1 + storing data (static, could be dynamic)
 - **Level3** (advanced): level2 + connection services, brokering, data warehousing, clearinghouse, etc

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- Q7: Do you support using 3rd NAP type for "complex" NAPs? [yes/no]
- Q8: Would you prefer using **levels** instead of specific terms? [yes/no]

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Please fill in the survey

① Start presenting to display the poll results on this slide.

NAP type labels summary

- Lot of NAP type labels are similar. Grouping to few types is needed.
 - It is difficult to choose best candidate for the "group" name.
 - Using levels (basic/medium/advanced) could help to resolve it
- we have**
- Portal with metadata and discovery service: data directory, web-link repository, data registry, data repository,
 - Portal with the above and data: data broker, data warehouse, data platform, + some specific functionality
 - Potentially 3rd group for NAPs with advanced data handling functions



Gathering information from you will helps us define best fit for purpose alternative.

Thanks for your attention

napcore

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Thank you for your attention

Questions & Answer Session

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Audience Q&A Session

① Start presenting to display the audience questions on this slide.

NAP Reference Architecture

31 Mar - 07 Apr 2023

Poll results

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Table of contents

- Is dynamic data processing a minimum functionality of a NAP?
- Is raw data processing a minimum functionality of a NAP?
- Final functionality questions
- NAP Type Q1
- NAP Type Q2
- NAP Type Q3

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What support functionality is a minimum functionality of a NAP? (2/2)

031

No Support

0 %

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Table of contents

- What support functionality is a minimum functionality of a NAP?
- What storage functionality is a minimum functionality of a NAP?
- What registration processes are minimum functionalities of a NAP?
- What registration processes are minimum functionalities of a NAP?
- I having an API a minimum functionalities of a NAP?
- Are using common description methods a minimum functionalities of a NAP?
- Quality checks methods as minimum functionalities of a NAP?
- Which meta data providing methods are minimum functionalities of a NAP?
- Data providing methods are minimum functionalities of a NAP?
- Dynamic data providing methods are minimum functionalities of a NAP?
- Is providing a interface between publisher and data consumer a minimum functionality of a NAP?
- Is Meta data processing a minimum functionality of a NAP?
- Are Static data processing a minimum functionality of a NAP?

What support functionality is a minimum functionality of a NAP? (1/2)

031

FAQ

52 %

Support Person

10 %

E-Mail

68 %

Contact Form

68 %

Telephon

6 %

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What storage functionality is a minimum functionality of a NAP?

032

Store meta data

91 %

Store static data

13 %

Store dynamic data

0 %

No storage of data

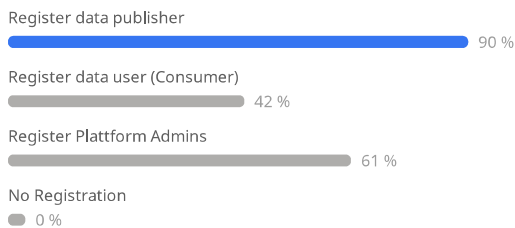
9 %

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What registration processes are minimum functionalities of a NAP?

031



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I having an API a minimum functionalities of a NAP?

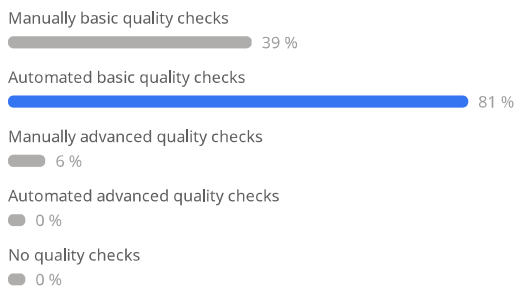
032



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Quality checks methods as minimum functionalities of a NAP?

031



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Which meta data providing methods are minimum functionalities of a NAP? (2/2)

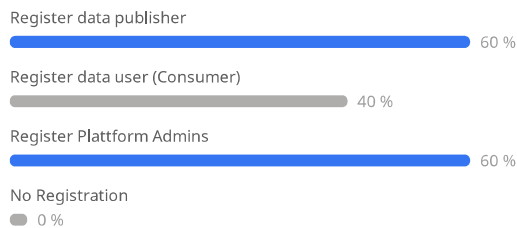
029



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What registration processes are minimum functionalities of a NAP?

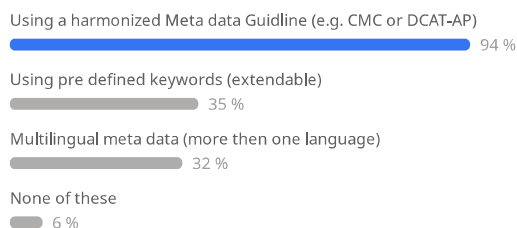
005



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Are using common description methods a minimum functionalities of a NAP?

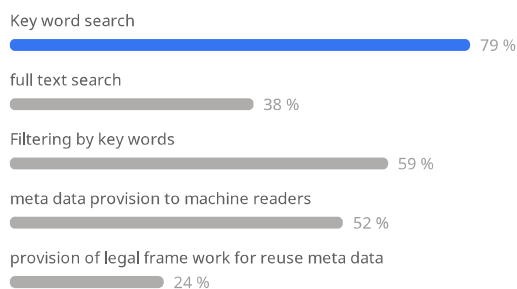
031



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Which meta data providing methods are minimum functionalities of a NAP? (1/2)

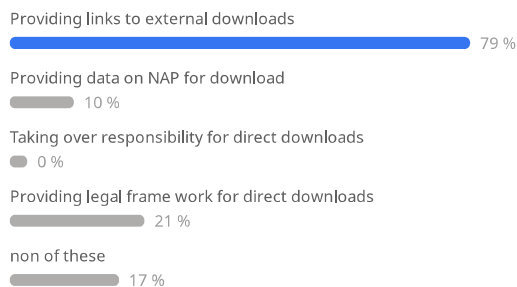
029



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Data providing methods are minimum functionalities of a NAP?

029



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Multiple-choice poll (Multiple answers)

Dynamic data providing methods are minimum functionalities of a NAP?
(1/2)

029

Providing links to external data sources

79 %

Providing dynamic data as PULL resource

3 %

Providing dynamic data as PUSH resource

10 %

Taking over responsibility for provided dynamic data

7 %

Providing legal frame work for provided dynamic data

24 %

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Multiple-choice poll (Multiple answers)

Dynamic data providing methods are minimum functionalities of a NAP?
(2/2)

029

non of these

10 %

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Multiple-choice poll (Multiple answers)

Is providing a interface between publisher and data consumer a minimum functionality of a NAP?

031

provide a data exchange interface

23 %

tracking contracts

0 %

provide a contract or license conclusion interface (clearing house)

0 %

non of these

81 %

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Multiple-choice poll (Multiple answers)

Is Meta data processing a minimum functionality of a NAP?

031

Integrate (harvest / process and visualise) Meta Data from external sources (manual triggered)

23 %

Automatically process external Meta Data (i.e., send to and email, via API)

42 %

non of these

52 %

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Multiple-choice poll (Multiple answers)

Are Static data processing a minimum functionality of a NAP?

030

Integration (harvest / store and visualise) Static Data from external sources

3 %

Automatically recieve and process external Staic Data (i.e., send to and email, via API)

20 %

non of these

77 %

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Multiple-choice poll (Multiple answers)

Is dynamic data processing a minimum functionality of a NAP?

031

Integration (harvest / store and visualise) Dynamic Data from external sources

3 %

Automatically recieve and process external Dynamic Data (i.e., send to and email, via API)

6 %

provide service interface (API) for multimodal connection search

13 %

non of these

84 %

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Multiple-choice poll (Multiple answers)

Is raw data processing a minimum functionality of a NAP?

030

process raw data (from different data sources) before providing it

7 %

provide data visualization (data could be hosted elsewhere on at the NAP)

7 %

non of these

90 %

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Rating poll

Final functionality questions (1/3)

031

How easy would it be to implement a pre defined Meta data structure?

Score: 2.8

6%

23%

58%

13%

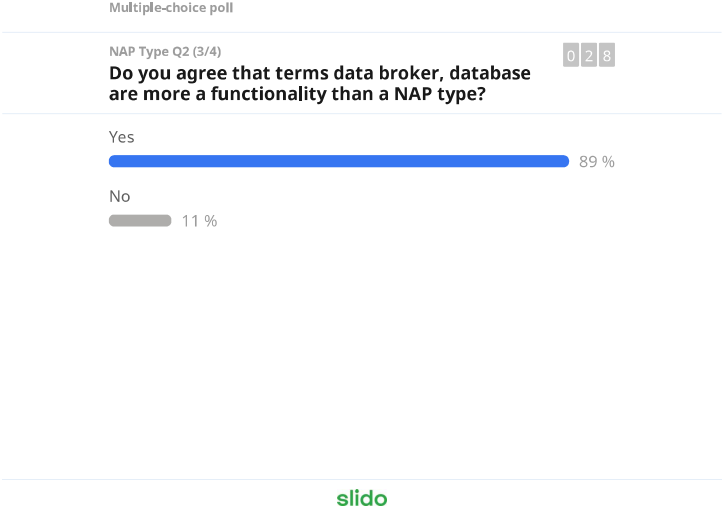
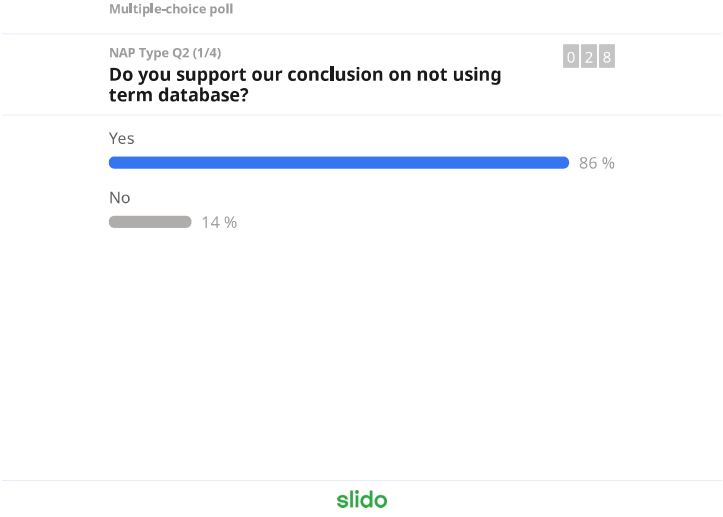
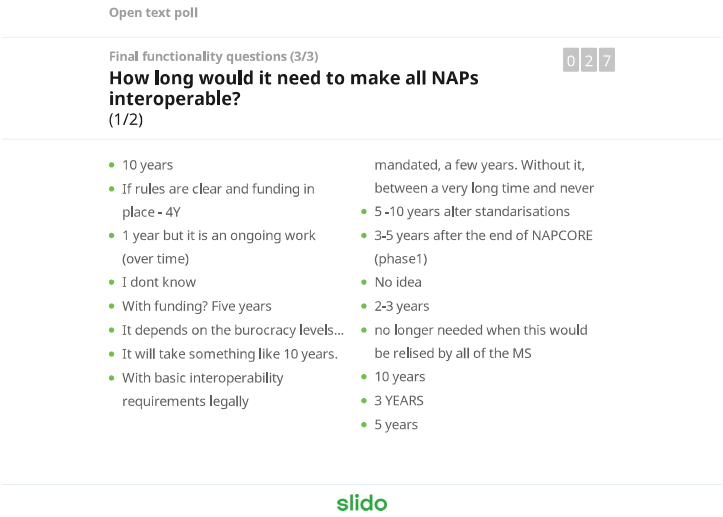
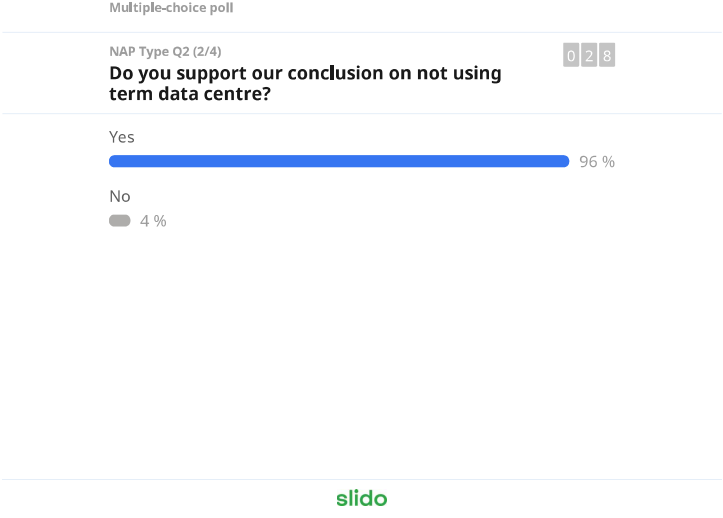
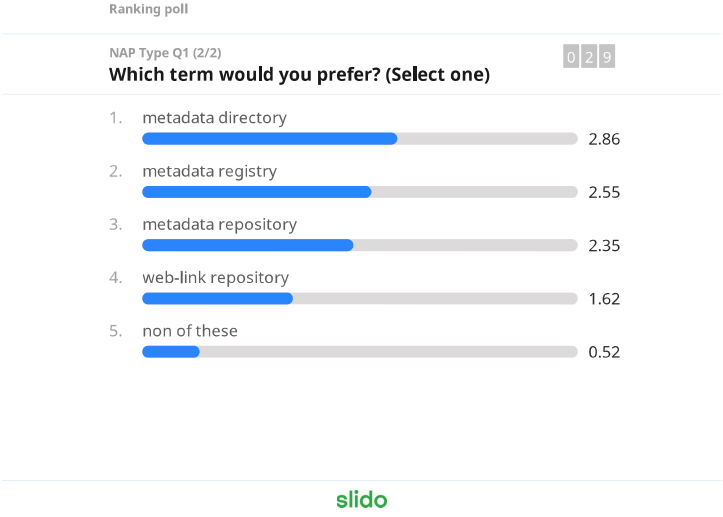
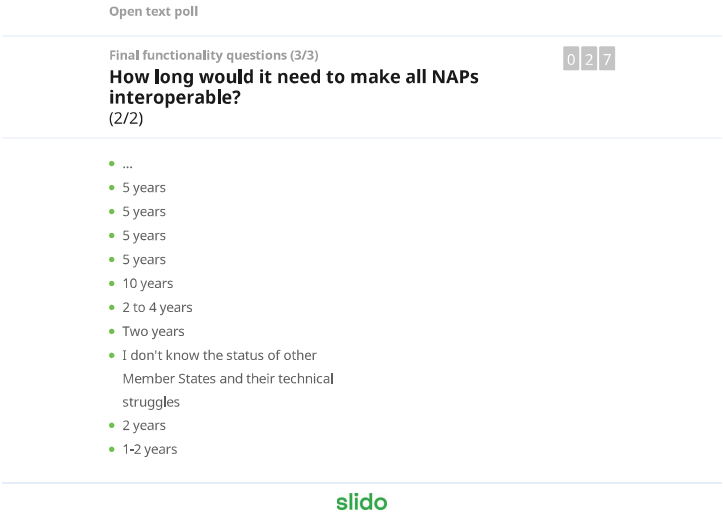
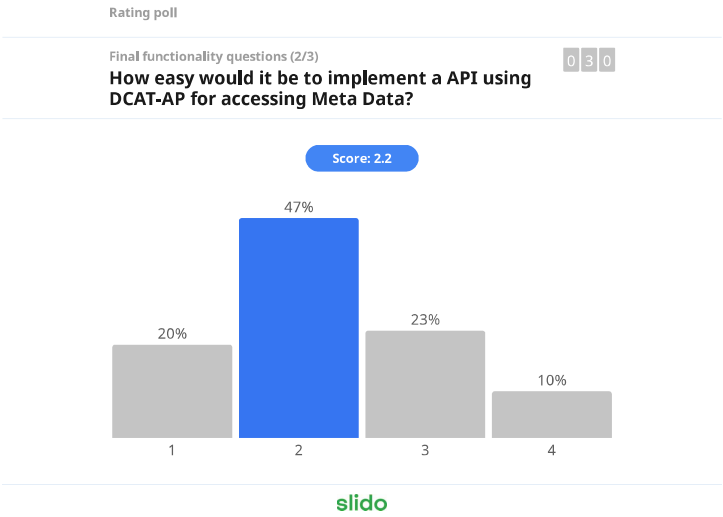
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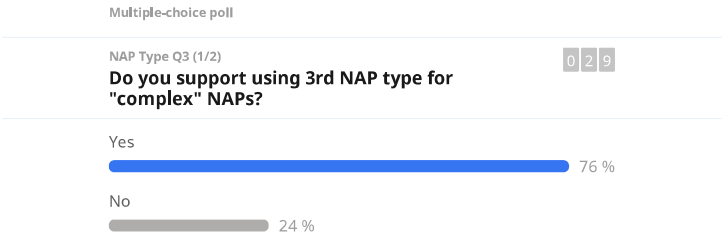
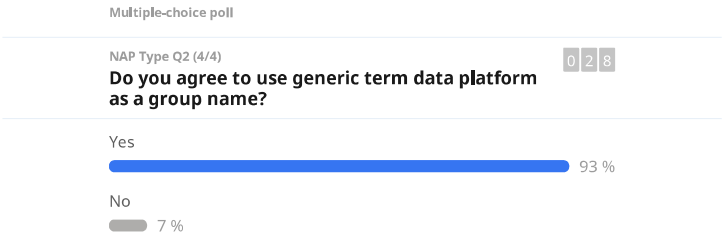
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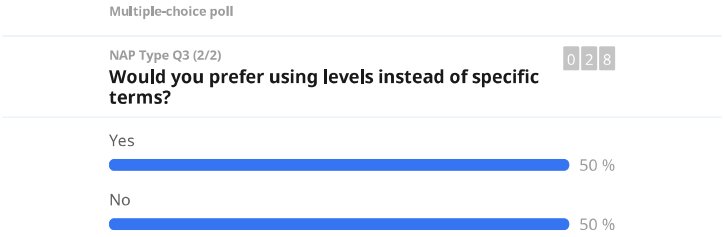
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