



Report from the cycling data ambassadors

Report 1 (May 2023)

Status: final
Version: 2.0
Date: July 2023

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Document information

Project acronym	NAPCORE
Full project title	National Access Point Coordination Organisation for Europe
Grant Agreement No.	MOVE/B4/SUB/2020-123/SI2.852232
Activity no. and title	Cycling data ambassadors
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Related to Milestone no.	-
External Milestone	no

Abstract

This is the first report of the cycling data ambassadors. Through a series of 'Reports from the cycling data ambassadors' the cycling data ambassadors will regularly give updates about developments in the domain of cycling and cycling infrastructure data that are relevant from the NAPCORE perspective. The topics can vary per report, but in general will deal with topics as:

- Cycling data types in the Delegated Regulations
- Standards for cycling and cycling infrastructure data
- Availability of cycling and cycling infrastructure data in NAPs

Abbreviations

Abbreviation	Meaning
EC	European Commission
CAT	Core Alignment Team
NAP	National Access Point
NAPCORE	National Access Point Coordination Organisation for Europe
SC, SCOM	Steering Committee
SCS	Steering Committee Support
SWG	Sub-working Group
WG	Working Group
WP	Working Programme

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1. Cycling and cycling infrastructure data standardisation

There is a need to harmonise current national standards for cycling and cycling infrastructure data, and to come to European standards. For bike sharing already standards exist, but for cycling and cycling infrastructure data this is not yet the case. Therefore a group of experts from the public and private sector have joint efforts:

- to identify various standardisation initiatives on cycling data in various EU countries and to identify overlaps and gaps in existing standards regarding cycling related data categories. For example: cycling infrastructure is currently not covered by a CEN standard.
- to carry out a thorough requirements analysis with respect to cycling and cycling infrastructure data.
- to collect relevant use cases, i.e. public and/or private sector driven use cases where standardised cycling and cycling infrastructure data would be of great added value.

WG4 will assess which standards are most suitable to support the gaps. This action requires the input from both the private sector and the public sector.

The first workshop on this topic was held on 18 April 2023. The presentations and a short report of the workshop can be found here. [\[create link to minutes here\]](#) Other workshops are foreseen in 2023 and 2024. More information can be found in the [News & Events section of our website](#).

2. The current status of cycling data in the delegated regulations

Two delegated regulations supplementing the ITS Directive (2010/40/EU) are relevant for cycling and cycling infrastructure data in NAPs:

- the delegated regulation [\(EU\) 2017/1926](#) on the provision of EU-wide multimodal travel information services (in short: MMTIS), as well as
- the Delegated Regulation [\(EU\) 2022/670](#) on the provision of EU-wide real-time traffic information services (in short: RTTI)

However, it should be noted that only certain data categories mentioned in these delegated regulations and its annexes are relevant in the context of cycling and cycling infrastructure data:

- for Multimodal Travel Information Services (MMTIS) the following specific cycling data categories are mentioned:
 - **Static traffic data:**
 - i. Cycle network (segregated cycle lanes, on-road shared with vehicles, on-path shared with pedestrians),
 - ii. How to book car sharing, taxis, cycle hire etc. (incl. retail channels, fulfilment methods, payment methods)
 - iii. Detailed cycle network attributes (surface quality, side-by-side cycling, shared surface, on/off road, scenic route, 'walk only', turn or access restrictions (e.g. against flow of traffic)
 - iv. Bike sharing stations
 - v. Secure bike parking (such as locked bike garages)
 - **Types of dynamic travel and traffic data:**
 - i. Cycling network closures/diversions
 - ii. Bike sharing availability
- for Real Time Traffic Information Services (RTTI) no specific cycling data categories are mentioned, but in general data on road infrastructure, regulations and restrictions are mentioned, which can also relate to cycling infrastructure and regulation/restrictions for cycling:
 - **The types of data on infrastructure:**
 - Road network links and their physical attributes, such as geometry, road width, number of lanes, gradients, junctions
 - **The crucial types of data on regulations and restrictions:**
 - static and dynamic traffic regulations, where applicable:
 - a) access conditions for tunnels
 - b) access conditions for bridges
 - c) permanent access restrictions
 - d) one-way streets

- **Other types of data on regulations and restrictions:**
 - the location and identification of traffic signs reflecting traffic regulations and identifying dangers:
 - a) access conditions for tunnels
 - b) access conditions for bridges
 - c) permanent access restrictions
 - d) other traffic signs reflecting traffic regulations
- **The crucial types of data on the state of the network:**
 - a) road closures
 - b) lane closures
 - c) roadworks
 - d) temporary traffic management measures
- **Other types of data on the state of the network:**
 - a) bridge closures
 - b) accidents and incidents
 - c) poor road conditions
- **The types of data on the real-time use of the network:**
 - a) traffic volume
 - b) traffic speed
 - c) location and length of traffic queues
 - d) travel times

In summary one can conclude that there are mainly three categories of cycling data:

- 1) data on the cycling network, such as the network, physical attributes, access restrictions, road closures, speed, volume, etc.
- 2) data on bike sharing and bike hire, such as bike sharing location, bike hire location, availability, booking, etc.
- 3) data on secure bike parking (location, availability)

It should be noted that these specifications should not oblige any stakeholder to start collecting any data that they are not already collecting or to digitise any data that is not already available in a digital machine-readable format. The specific requirements only apply to the data that is actually collected and available in a digital machine-readable format.

3. NeTEx extension for new modes, including bike sharing

Note: the following text on NeTEx is (partly) based on information from https://netex-cen.eu/?page_id=534

NeTEx (Network Timetable Exchange) defines a standard for exchanging public transport passenger information data in XML format. The functional scope of NeTEx is divided into five parts, each covering a functional subset of the CEN Transmodel conceptual model for Public Transport Information:

- Part 1 describes the fixed network (stops, routes, lines, etc.)
- Part 2 is mainly focused on timetables
- Part 3 covers fare data
- Part 4 describes the European Profile for NeTEx, focusing on information relevant to feed passenger information services (excluding operational and fares information)
- Part 5, the **NeTEx extension for New Modes**, is dedicated to the publication of data concerning 'Alternative Modes'. It focuses on (but not a limitation to) car sharing, cycle sharing, carpooling, car/cycle rental. It is primarily oriented towards static data (describing the service that is offered and associated infrastructure, more than its current running status). The corresponding real-time information is provided by SIRI.



Figure 1: Part 5 extension of NeTEx

This NeTEx extension is based on the Transmodel extension for New Modes (Transmodel is the data model, and NeTEx the exchange protocol). Additional input (GBFS, DATEX II, OCPI, MDS, etc.) will also be taken into account. NeTEx already covers a lot of the needs to describes new modes (Site, Location, Role, Connection, Trip, Journey, Vehicle Type, Parking, Passing Time, etc.). Therefore, New Modes mostly reuses concepts and just adds a few attributes and concept to the existing ones.

More information on NeTEx Part 5:

- [NeTEx extension for New Modes – Scope and overview](#)
- Link to NeTEx part 5 specification CEN/TS 16614-5:2022 (June 2022):
https://standards.cencenelec.eu/dyn/www/f?p=CEN:110:0::::FSP_PROJECT,FSP_ORG_ID:72309,6259&cs=1EEFDC9E411CCD7910570392EB9701C5A.
- Technical Artefacts NeTEx part 5: https://github.com/NeTEx-CEN/NeTEx/tree/master/xsd/netex_part_5
- Recording of webinar on NeTEx and SIRI standards for new modes: <https://data4pt-project.eu/webinar-on-netex-and-siri-standards-for-new-modes-recording-now-online/>
- Canonical mapping between GBFS and NeTEx 'new modes' and SIRI:
https://data4pt.org/w/images/5/5b/Canonical_mapping_-_NeTEx_and_SIRI_new_modes_with_GBFS.pdf

4. INSPIRE – MMTIS

The aim of the INSPIRE-MMTIS study (2019) is to identify and analyse the overlaps and gaps existing among the relevant standards to be used for the sharing and reuse of data under the remit of Commission Delegated Regulation (EU) 2017/1926 on the provision of EU-wide multimodal travel information services (MMTIS).

The overall objective of the study, elaborated by experts on each applicable standard (i.e. Transmodel, NeTEx, DATEX, TAP-TSI, IATA, INSPIRE), is to identify and analyse the overlaps and gaps existing among the relevant standards. Specifically, the study:

- provides a definition for each data category (in the Annex of the MMTIS Regulation the data categories are just listed without any definition);
- for each data category, identifies one “reference standard” and one or more “contributing standard(s)” ; and
- formulates recommendations for both data providers and data users on how to deal with the overlaps/gaps, including the use of mapping tables when relevant.

Although the MMTIS Regulation mentions INSPIRE as the mandatory source of requirements only for spatial networks, the analysis reveals that INSPIRE can play the role of reference/contributing standard also for other data categories than the Road Network, e.g. for Address identifiers or Points of interest. A methodology is applied to identify and then classify different types of overlaps and to produce mapping tables from a contributing standard towards a reference standard.

Based on the developed methodology and use cases, recommendations are formulated to both NAP data consumers and data providers for each data category. For data consumers, recommendations represent a guidance to select the most suitable datasets among those published in the NAPs; for NAP data providers, recommendations represent a guidance for publication aimed to avoid semantic duplication in the data. Finally, some recommendations are also formulated to the EU Member States and/or the Commission, which identify the need for further developments in order to increase data interoperability across the different standards.

The study can be download via this [link](#).

5. Interoperability

Working Group 2 (WG2) aims to enhance the compatibility of Member States' NAP data and features as well as the harmonisation of levels of service. As part of this work WG2 has performed an analysis of data standards, made an inventory of shortcomings and formulated recommendations concerning data standards. These are documented in the report below. This also includes data categories in the field of cycling and cycling infrastructure.

- M2.4_ List of gaps and used standards.pdf ([create link to this report](#))

In the next version of the 2.4 report, the analysis will be extended to include more data standards, as well as reference profiles and metadata.

6. Cycling data in the NAPs

Working Group 3 (WG3) of NAPCORE has made an inventory of the data availability in the NAPs as well as the use of various standards. A first report was published in October 2022 and can be downloaded here:

- M3.2_Report on NAP data availability_v2.0_with bike marking.pdf ([create link to this report](#))

An updated version with much more detailed information, including more information on cycling and cycling infrastructure data, was written early 2023. This report will be available in June 2023:

- Second Report on NAP data availability_v1.1_march2023_with bike marking_low.pdf (*will be available in June 2023*)

Working Group 3 has also produced a report on data requirements, existing gaps, data dictionaries and supporting material. Cycling and cycling infrastructure data is mentioned also in this report. The report is still under review and is expected to be publicly available in May 2023.

- M3.1_Data content requirements, existing gaps, data dictionaries and supporting material_v1 (*will be available in May 2023*)

7. Other relevant links

BITS project (Bicycles and ITS):

The Bicycles and ITS project (BITS, 2019-2022) aimed at demonstrating the benefits of ITS in the promotion of cycling. The project was partly funded through the Interreg North Sea Programme. An important part of the project was creating awareness for the importance of cycling data and the promotion of ITS products and services for cycling. Some relevant links:

- Project website: <https://northsearegion.eu/bits/>
- CycleDataHub: <https://cycle-data-hub-provincieantwerpen.hub.arcgis.com/>
- Article about cycling data:
<https://www.sciencedirect.com/science/article/pii/S235214652100956X>
- Bicycles and ITS Directory: <https://www.bitsdirectory.com/>

MegaBITS project (Mobilizing Europe's Green Ambition through Bicycles and Intelligent Transport Systems)

Follow-up of the BITS project. Website to be launched soon.