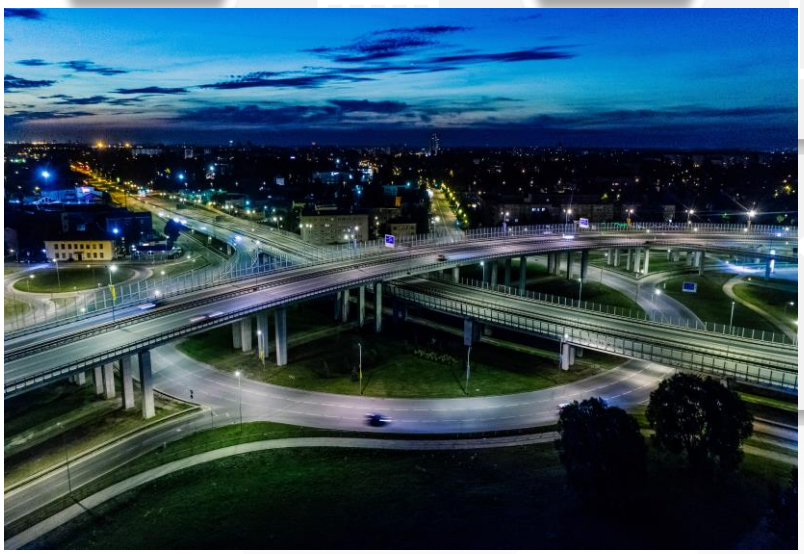
First Report on NAP data availability

NAPCORE Working Group 3

NAP content and accessibility



This report provides information about the progress of NAP implementations across Europe and data availability in 2021 - 2022. It provides further insight into the implemented data standards and other topics related to NAP design and operation.

It serves as a knowledge centre and basis for achieving a harmonized NAP deployment and operation across Europe.

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Preface

This report provides insight on the status of National Access Points across Europe, including the actual level of implementation of NAPs among Member States. By that means, it paves the ground for the identification and mitigation of gaps that were formed during the last decade.

Preface: Commission Delegated Regulations and corresponding ITS Directive priority actions

PRIORITY ACTION	DELEGATED REGULATION	THEME	COMMON REFERENCE
(e)	(EU) No 885/2013	provision of information services for safe and secure parking places for trucks and commercial vehicles	safe and secure truck parking (SSTP)
(c)	(EU) No 886/2013	data and procedures for the provision, where possible, of road safety-related minimum universal traffic information free of charge to users	safety related traffic information (SRTI)
(b)	(EU) 2015/962 (EU) 2022/492*	the provision of EU-wide real-time traffic information services	real-time traffic information (RTTI)
(a)	(EU) 2017/1926	the provision of EU-wide multimodal travel information services	Multimodal travel information services (MMTIS)

*applies from 2023 (some part) and 2025

Overview

By sharing the knowledge and experiences of Member States (MS) that have already implemented NAPs, other MS can benefit from this opportunity. At the same time, it could lead to a more harmonised implementation of NAPs across Europe.

Harmonisation

The NAPCORE harmonisation initiative represents one of the most ambitious harmonization projects that has been executed in the field of ITS-related data exchange in Europe. It brings together more than 30 mobility data platforms all over Europe.

Monitoring

This report provides an overview of:

- NAPCORE project and monitoring activities (Chapter 1)
- Status of NAPs implementation and data availability (Chapter 2)
- Standards and common formats including the status of national implementations and profiles (Chapter 3)
- The status of NAPs considering other crucial aspects, such as metadata availability, description of data quality, provision of terms and conditions for data re-use, compliance assessment, number of data providers and consumers (Chapter 4)

This report also contains several Annexes that provide a detailed operational picture of European NAPs.

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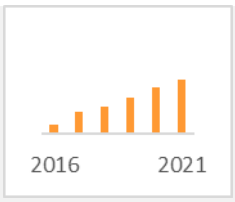
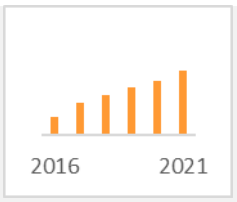
2021 NAP Monitoring Highlights

28
NAP implementers provided survey feedback in 2021

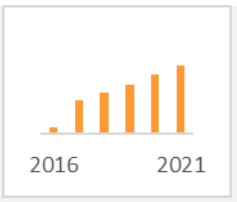
Number of operational NAPs



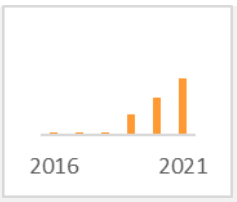
SSTP



SRTI



RTTI



MMTIS

NAPCORE WG3

- Monitors development and data availability of European NAPs, identifies gaps, improvement needs, & makes recommendations
- Works towards enhanced data quality, harmonized terminology-data provision, and increased added value

DATA AVAILABILITY

- Static SSTP-related data are made available by the NAP of 14 to 20 countries
- Only 6 countries appear to make available through their NAP dynamic SSTP-related data
- SRTI-related data are made available by the NAP of 21 countries
- Static and dynamic RTTI-related data are made available by the NAP of up to 21 countries (excluding traffic circulation plans and freight delivery regulations)
- Big diversity on the availability of MMTIS-related data

NAP STATUS

- Most European countries operate a NAP for SRTI and RTTI
- The status of European NAPs for SSTP depends on the availability of safe & secure truck parking areas
- The status of European NAPs for MMTIS has evolved significantly since 2017

IMPLEMENTED STANDARDS

- SSTP-SRTI-RTTI: DATEX II constitutes the most frequently used data standard
- MMTIS: Big diversity on the standards used (NeTEx, GTFS, DATEX II, and other national formats)
- Frequently used location referencing methods: Coordinates & ALERT C point (point encoding), Alert C linear & linear along linear element (line encoding), Alert C area & Open LR area (area encoding)

METADATA & NAP ARCHITECTURE

- 21 countries provide metadata through their NAPS
- The NAP of 13 countries operates as a metadata repository
- The NAP of 14 countries operates both as a metadata repository and database

OPEN DATA

- The “Open data” trend is maintained in the NAP ecosystem, since 21 countries estimate that more than 86% of their datasets conform to open licensing models
- CC0 and CC BY-SA are the most frequently used licensing models

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List of abbreviations

CEN	European Committee for Standardization
DRs	Delegated Regulation(s)
EC	European Commission
GBFS	General Bikeshare Feed Specification
GDPR	General Data Protection Regulation
GTFS	General Transit Feed Specification
ITS	Intelligent Transport Systems
JSON	JavaScript Object Notation
MMTIS	Multimodal Travel Information Services
MS	EU Member States
NAPs	National Access Point(s)
NBs	National Bodies
NeTEx	Network Timetable Exchange (CEN Technical standard)
PIM	Platform Independent Model
PSM	Platform Specific Model
RRP	Recommended Reference Profile(s)
RSP	Recommended Service Profile(s)
RTTI	Real-Time Traffic Information
SIRI	Standard Interface for Real-time Information (CEN Technical Standard)
SRTI	Safety-Related Traffic Information
SSTP	Safe and Secure Truck Parking
TMC	Traffic Management Center
Transmodel	Public Transport Reference Data Model (EN 12896)
UML	Unified Modelling Language
XML	eXtensible Markup Language
W3C	World Wide Web Consortium
WG	Working Group

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1 Introduction

Working Group 3 titled “NAP content and accessibility” aims to assess and enhance the content and accessibility of European NAPs.

1.1 Scope & objectives of NAPCORE WG3

The activities of WG3 contribute to the harmonisation of European NAPs content by taking into consideration the existing developments and potential future progress in the ITS domain. The activities aim to facilitate the fair, trusted, and enhanced accessibility to ITS-related data through the investigation of aspects related to data availability (technical and procedural), data quality, data reuse and data visualisation. Its specific objectives are as follows:

- Support Member States towards a common understanding on the current and future content of European NAPs considering existing, planned, and foreseen European legislative and technological developments.
- Monitor and assess the availability of ITS-related data at both national and Pan-European NAP level.
- Identify data gaps and provide guidelines to mitigate these gaps.
- Set a robust framework for and bring into practice the evaluation of European NAP platforms’ data quality.
- Investigate commonly accepted frameworks and technical options to achieve fair, trusted, and enhanced accessibility to ITS-related data through European NAPs.
- Create added value visualisation tools to be used by NAP operators, data providers, and data consumers.
- Support the enhanced use of NAPs in key application areas of priority and added value for EU Member States.
- Align the achievements on the NAP content and accessibility level with the remaining activities and needs of the project, including training.

Fehler! Verweisquelle konnte nicht gefunden werden.Fehler! Verweisquelle konnte nicht gefunden werden. enlists the tasks of WG3. The current falls under the scope of Task 3.1.

Table 1.1 Tasks of WG3 in NAPCORE

Task 3.1	Data content requirements arising from current and future developments
Task 3.2	European NAPs data quality
Subtask 3.2.1	Quality Frameworks
Subtask 3.2.2	Guidance & best practices for quality assessment

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Subtask 3.2.3	Quality certification for NAP datasets
Task 3.3	Data access and reuse
Subtask 3.3.1	Technical options for data visualisation
Subtask 3.3.2	Terms and conditions of data reuse (incl. data pricing)
Subtask 3.3.3	Implications of GDPR
Task 3.4	Data Exchange Vision
Task 3.5	Training for NAP content and accessibility

1.2 Monitoring & Harmonisation of NAPs – WG3 in NAPCORE

One of the activities of this Working Group is to monitor the on-going implementation of NAPs, to enable mutual learning, and to harmonise NAP services across Europe.

Currently, NAPs are being or have been implemented by almost all MS; however, the implementation of NAPs across Europe varies. For instance, some countries have separate NAPs to support different Delegated Regulations supplementing the ITS Directive, while some other support all Delegated Regulations by a single NAP. Similarly, the type of NAPs (e.g., repository of links, databases, or both) and compliance assessment procedures differ significantly. Therefore, the current work aims at monitoring EU-wide NAP developments, contributing to harmonisation, and acting as a knowledge centre for among others: Member States, NAP operators, and Nominated National Bodies (NB).

The objectives of the current report are the following:

- To monitor the development and data availability of NAPs across Europe, identify commonalities, substantial differences, and improvement needs.
- To pave the ground for the harmonization of NAPs in Europe by making recommendations for various NAP-related topics and domains, such as the use of metadata specifications.
- Enable knowledge exchange between/among various MS in the field of NAPs.

1.3 Methodology

In the context of the preparation of this report, multiple methodologies were deployed. Leveraging the fact that all MS are part of NAPCORE project, primary data collection methodology was to conduct a survey on data availability. Responses to this survey, were provided, via e-mail, by MS implementing bodies, operators of NAPs, responsible ministries, or representatives of nominated NBs. The survey approach was further strengthened by conducting extensive desk research. Any errors or conflicting data was resolved by one-on-one communication and where possible, counter-checked by data available from other projects such as Data4PT. The insights presented in this report are identified and substantiated during project workshops and meetings with experts.

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The survey covered details about the status of NAP implementation, including the URL of each NAP, and a description of whether it is operational or planned. It also covered the availability of the data required by the DRs supplementing the ITS Directive (2010/40/EU), the supported language(s), and the presence of any quality requirements. It covered the type of each NAP (i.e., whether it hosts data or solely provides web links to data), the adopted data exchange standards (e.g., DATEX II), the support of metadata and/or discovery services, and the number of organizations (public or private) using NAP either as data providers or data consumers. The survey was circulated amongst 30 countries and responses were received from 28 countries. One completed survey was received per country. For the countries with missing survey response (i.e., Ireland and Luxemburg), desk research was conducted using the online information available on their official NAP. The survey is retrospective, and answers are interpreted as valid for 2021, i.e., columns related to 2021 represent this year's (2022) survey.

The feedback acquired, by following either approach, is presented and analysed in the current report in a both disaggregated and aggregated manner. The former provides support to European Commission (EC), relevant instruments and any other user to obtain a European-wide "operational picture" of NAPs. The latter facilitates further discussions to identify and assess important NAP gaps. It should be noted that the current report is the first of a series of relevant reports that will be republished periodically. Future endeavors will seek to provide information of finer granularity, such as transport mode specific insights (where necessary) and spatial or network coverage of NAP data.

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2 State of the art

This chapter describes the **status of implementation** of National Access Points in Europe as well as their **data availability**, based on the NAPCORE research conducted in 2022.

Provided information will be updated frequently to reflect the progress made in the implementation of the Delegated Regulations supplementing the ITS Directive (**SSTP**, **SRTI**, **RTTI,** and **MMTIS).**

This chapter starts with describing the rationale applied for recording the status of NAP implementation across Europe. This is then followed by the status description of NAPs supporting (a) the provision of information services for safe and secure truck parking places (SSTP), (b) the provision of safety-related traffic information services (SRTI), (c) the provision of real-time traffic information services (RTTI), and (d) the provision of multimodal travel information services (MMTIS). Subsequently, it describes the methodology applied for recording data availability in the European NAPs, which is then followed by the presentation of the derived results.

2.1 Monitoring the status of European NAPs

As discussed in the previous chapter, in order to monitor the status of implementation of NAPs in Europe, a survey-based research methodology was adopted. For data collection, a survey template was designed as part of the WG3 Task 3.1. Relevant to this chapter questions were intended to receive feedback about the status of NAP implementation with regard to the requirements set by the DRs supplementing the ITS Directive (2010/40/EU). The following terminology is adopted for describing in a harmonized, consistent, and trackable manner the status of each NAP:

- "**Operational**", when data according to the DRs supplementing the ITS Directive are made available to the public through a NAP (dedicated or not), without recognition of completeness. Therefore, "Partly Operational" NAPs are addressed as operational (i.e., one part of data is made available while another not).
- "**Implementation**", when a designated NAP is in the phase of being tendered or implemented by a nominated contactor or by a public entity. This category also encompasses NAPs that are in the "test run".
- "**Planned**", when there is trackable activity towards the implementation of a NAP as well as towards the planning of NAP architecture, the arrangement of organizational structure and responsibilities, or the preparation of studies and tenders. "In Progress" responses and statuses are addressed as falling into this category.
- "**Not Operational**", when data according to the DRs supplementing the ITS Directive (2010/40/EU) may be available in a digital manner, but **not** available to the general public through a NAP (dedicated or not).

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- **"Not Applicable"**, when there is enough evidence to judge that data according to the DRs supplementing the ITS Directive (2010/40/EU) are not at all available, e.g., due to the absence of the required infrastructure. A typical example constitutes the absence of safe and secure parking areas within a specific MS.

The acquired information is checked for consistency, with responses provided in previous surveys and the information collected by the EC[1]. Where necessary, extra clarification was requested from the respective NAPCORE project partner. In some cases, desk research was conducted to gather, support and/or verify the acquired information. Information for the previous years (2016-2020) originates from similar analyses conducted under the EU EIP project, which produced the so-called annual NAP reports[2]. The URL links to access the NAPs and the NBs which are responsible for the implementation of the ITS Directive per country are available in Annex I - National Access Points and National Bodies.

2.1.1 Status of NAPs for Safe and Secure Truck Parking

This section presents the progress and current status of implementation, per country, of the European NAPs with regard to the provision of information services for safe and secure parking places for trucks and commercial vehicles in line with the DR(EU) 885/2013 (in short 'NAPs for SSTP'). The DR(EU) 885/2013 was adopted by the EC on 18 September 2013 and applies (a) from 1 October 2015 to the provision of services already deployed on the date of entry into force of this DR and (b) from 1 October 2013 to the provision of services to be deployed after the date of entry into force of this DR. The current status is presented in Table 2.1. The table also presents the status as of 2016.

Table 2.1. Status of NAPs for safe and secure truck parking information

Country	2016	2017	2018	2019	2020	2021
Austria	Planned	Operational	Operational	Operational	Operational	**Operational**
Belgium	Operational (Flanders only)	Operational	Operational	Operational	Operational (via EU portal)	**Operational**
Bulgaria	-	-	-	Planned	Operational	**Operational**
Croatia	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	**Not Applicable**
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	**Not Applicable**
Czech Republic	-	Not Applicable	Operational (via EU portal)	Operational (via EU portal)	Operational (via EU portal)	**Operational**
Denmark	Planned	Operational	Operational	Operational	Operational	**Operational**
Estonia	-	-	Planned	Planned	Operational	**Operational**
Finland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	**Operational**
France	-	Operational	Operational	Operational	Operational	**Operational**
Germany	Operational	Operational	Operational	Operational	Operational	**Operational**
Greece	-	Planned	Planned	Planned	Operational	**Operational**
Hungary	-	Planned	Implementation	Operational	Operational	**Operational**
Ireland	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	**Not Applicable**
Italy	-	-	-	Operational	Operational	**Operational**
Latvia	-	-	Planned	Planned	Planned	**Operational**
Lithuania	-	-	-	-	-	**Not Applicable**
Luxembourg	-	-	Operational	Operational	Operational	**Operational**

[1] https://transport.ec.europa.eu/transport-themes/intelligent-transport-systems/road/action-plan-and-directive/national-access-points_en
[2] https://www.its-platform.eu/achievement/monitoring-harmonisation-of-naps/

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Country	2016	2017	2018	2019	2020	2021
Malta	-	-	-	-	-	**Not Applicable**
Netherlands	Operational	Operational	Operational	Operational	Operational	**Operational**
Norway	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	**Not Applicable**
Poland	Planned	Planned	Planned	Operational	Operational	**Operational**
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	**Not Applicable**
Romania	-	Planned	Planned	Planned	Operational	**Operational**
Slovakia	-	-	-	Operational	Operational	**Operational**
Slovenia	-	Operational	Operational	Operational	Operational	**Operational**
Spain	-	Operational	Operational	Operational	Operational	**Operational**
Sweden	Operational	Operational	Operational	Operational	Operational	**Operational**
Switzerland	-	-	-	-	-	**Operational**
United Kingdom	-	-	-	-	Planned	**Implementation ***

*A new NAP is under implementation

The progress of implementation of the DR (EU) 885/2013 is illustrated in Figure 2.1. In 2016 only 4 countries had an operational or partly operational NAP and another 3 had a planned NAP. In the following years there was a significant increase and in 2021 (2022 Survey) 22 out of 30 countries appear to have an operational or partly operational NAP, while one country is in the phase of implementation (UK). The remaining 6 countries are assumed to not operate at that time safe and secure truck parking places. Therefore, the implementation status of these countries is classified as “Not Applicable”.

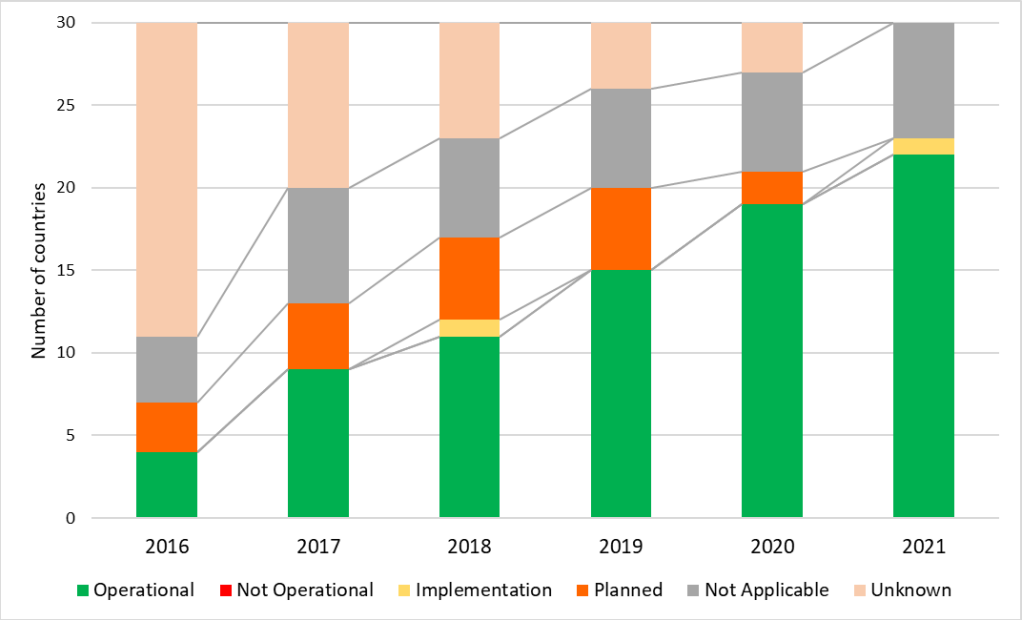

Figure 2.1 Implementation of DR (EU) 885/2013 – SSTP by the Member States.

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2.1.2 STATUS OF NAPS FOR SAFETY-RELATED TRAFFIC INFORMATION

This section describes the progress and current status of the European NAPs with regard to data and procedures for the provision of safety-related traffic information in line with the DR (EU) 886/2013 (in short 'NAPs for SRTI'). The DR (EU) 886/2013 was adopted by the EC on 18 September 2013 and applies from 1 October 2013. The current status is presented in Table 2.2. The same table presents the status as of 2016.

The progress of implementation of the DR (EU) 886/2013 is illustrated in Figure 2.4. It can be observed that there was an increase from 7 countries in 2016, to 26 countries in 2021, regarding the countries that had an operational or partly operational NAP. Consequently, it can be deduced that almost all European countries operate a NAP with regard to DR (EU) 886/2013.

Table 2.2 Status of NAPs for safety-related traffic information

Country	2016	2017	2018	2019	2020	2021
Austria	Planned	Operational	Operational	Operational	Operational	**Operational**
Belgium	Planned	Planned	Implementation	Implementation	Implementation	**Operational**
Bulgaria	-	-	-	Operational	Operational	**Operational**
Croatia	-	Planned	Planned	Planned	Planned	**Operational**
Cyprus	Not operational or planned	Not operational or planned	Not operational or planned	Not operational or planned	Not operational or planned	**Implementation ****
Czech Republic	-	Operational	Operational	Operational	Operational	**Operational**
Denmark	Operational	Operational	Operational	Operational	Operational	**Operational**
Estonia	-	-	Operational	Operational	Operational	**Operational**
Finland	Operational	Operational	Operational	Operational	Operational	**Operational**
France	-	Operational	Operational	Operational	Operational	**Operational**
Germany	Operational	Operational	Operational	Operational	Operational	**Operational**
Greece	-	Planned	Implementation ongoing	Operational (partly)	Operational (partly)	**Operational**
Hungary	-	Planned	Operational	Operational	Operational	**Operational**
Ireland	-	-	-	-	-	**Operational**
Italy	Operational	Operational	Operational	Operational	Operational	**Operational**
Latvia	-	-	Planned	Planned	Not operational	**Operational**
Lithuania	-	-	-	Not operational	Operational	**Operational**
Luxembourg	-	-	Planned	Operational	Operational	**Operational**
Malta	-	-	-	-	-	**Not operational***
Netherlands	Operational	Operational	Operational	Operational	Operational	**Operational**
Norway	Operational	Operational	Operational	Operational	Operational	**Operational**
Poland	Planned	Operational	Operational	Operational	Operational	**Operational**
Portugal	Planned	Planned	Planned	Planned	Planned	**Operational**
Romania	-	Planned	Planned	Planned	Operational (partly)	**Operational**
Slovakia	-	-	Operational	Operational	Operational	**Operational**
Slovenia	-	Operational	Operational	Operational	Operational	**Operational**
Spain	-	Operational	Operational	Operational	Operational	**Operational**
Sweden	Operational	Operational	Operational	Operational	Operational	**Operational**
Switzerland	-	-	-	-	-	**Planned**

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Country	2016	2017	2018	2019	2020	2021
United Kingdom	-	-	-	-	Operational	**Implementation *****

*Website available but not operational
**The NAP is in the process of being upgraded and currently the data is not available
***A new NAP is under implementation

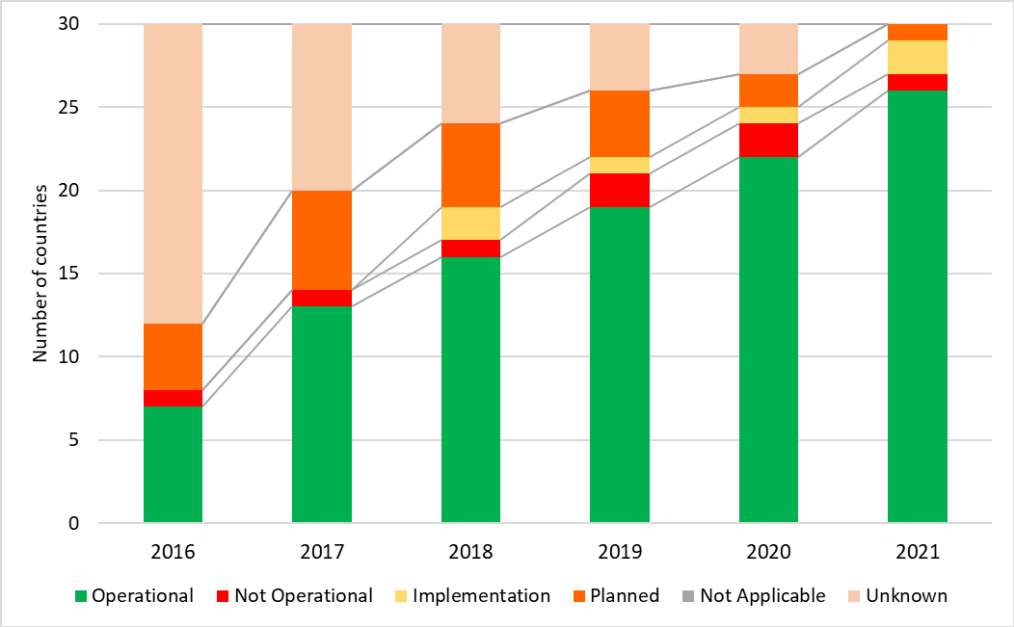

Figure 2.2 Implementation of the DR (EU) 886/2013 – SRTI by the Member States.

2.1.3 STATUS OF NAPS FOR REAL-TIME TRAFFIC INFORMATION

This section describes the current status of implementation of the European NAPs with regard to the provision of EU-wide real-time traffic information services in line with DR (EU) 2015/962 (in short 'NAPs for RRTI'). The DR (EU) 2015/962 was adopted by the EC on 23 June 2015 and applies from 13 July 2017. Recently, a follow-up version of this DR is published as DR (EU) 2022/670 and comes in force from 2023 for some parts and fully from 2025. The current status is presented in Table 2.3. The same table presents the status as of 2016[3].

The progress of implementation of the DR (EU) 2015/962 is illustrated in Figure 2.3. It can be observed that there was a significant increase from 4 countries in 2016, to 28 countries in 2021, with an operational or implemented (partly operational) NAP. Similar to SRTI, it appears that almost all European countries operate a NAP for RRTI.

Table 2.3 Status of NAPs for DR for real-time traffic information

Country	2016	2017	2018	2019	2020	2021
Austria	Planned	Operational	Operational	Operational	Operational	**Operational**
Belgium	-	-	Planned (in progress)	Planned (in progress)	Planned (in progress)	**Operational**

[3] Even though DR (EU) 2015/962 applies from 13 July 2017, some countries declared in the context of the EIP+ and EU EIP projects that they had as of 2016 an operational or planned NAP for the second priority action (delegated act) of the ITS Directive (2010/40/EU).

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Country	2016	2017	2018	2019	2020	2021
Bulgaria	-	-	-	Planned	Operational	**Operational**
Croatia	-	Planned	Planned	Planned	Planned	**Operational**
Cyprus	Operational (partly)	Operational (partly)	Operational (partly)	Operational (partly)	Operational (partly)	**Implementation ****
Czech Republic	-	Operational	Operational	Operational	Operational	**Operational**
Denmark	Planned	Operational	Operational	Operational	Operational	**Operational**
Estonia	-	-	Operational	Operational	Operational	**Operational**
Finland	Operational	Operational	Operational	Operational	Operational	**Operational**
France	-	Operational	Operational	Operational	Operational	**Operational**
Germany	Operational	Operational	Operational	Operational	Operational	**Operational**
Greece	-	Planned	Implementation (ongoing)	Operational (partly)	Operational	**Operational**
Hungary	-	-	Planned	Operational	Operational	**Operational**
Ireland	-	Operational	Operational	Operational	Operational	**Operational**
Italy	-	Operational	Operational	Operational	Operational	**Operational**
Latvia	-	-	Planned	Planned	Planned	**Operational**
Lithuania	-	-	-	Operational	Operational	**Operational**
Luxembourg	-	-	Operational	Operational	Operational	**Operational**
Malta						**Not Operational***
Netherlands	Planned	Operational	Operational	Operational	Operational	**Operational**
Norway	Planned	Operational	Operational	Operational	Operational	**Operational**
Poland	-	-	-	-	-	**Operational**
Portugal	Planned	Planned	Planned	Planned	Planned (in progress)	**Operational**
Romania	-	Planned	Planned	Planned	Operational (partly)	**Operational**
Slovakia	-	-	Operational	Operational	Operational	**Operational**
Slovenia	-	Operational	Operational	Operational	Operational	**Operational**
Spain	-	Operational	Operational	Operational	Operational	**Operational**
Sweden	Planned	Operational	Operational	Operational	Operational	**Operational**
Switzerland	-	-	-	Planned	Operational	**Operational**
United Kingdom	-	-	-	-	Operational	**Implementation *****

*Website available but not operational

**The NAP is in the process of being upgraded, data is not currently available

***A new NAP is under implementation

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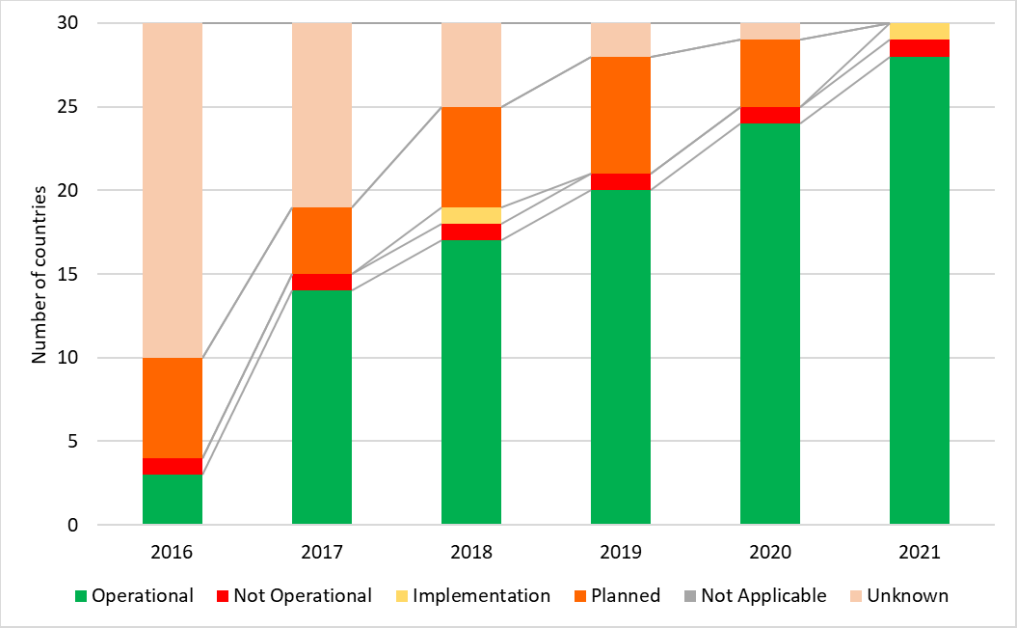

Figure 2.3 Implementation of the DR (EU) 2015/962 – RTTI by the Member States.

2.1.4 STATUS OF NAPS FOR MULTIMODAL TRAVEL INFORMATION SERVICES

This section describes the current status of implementation of the NAPs with regard to the provision of multimodal travel information services, in short 'NAP for MMTIS'. The DR (EU) 2017/1926 was adopted by the EC on 21 October 2017. The application of the DR (EU) 2017/1926 is divided into four separate timeframes. The first timeframe (1 December 2019) encompasses the provision of static travel and traffic data associated with the '1st Level of Service' for the comprehensive TEN-T network. The second timeframe (1 December 2020) encompasses the provision of static travel and traffic data associated with the '2nd Level of Service' for the comprehensive TEN-T network. The third timeframe (1 December 2020) encompasses the provision of static travel and traffic data associated with the '3rd Level of Service' for the comprehensive TEN-T network, while the fourth timeframe (1 December 2023) encompasses the provision of static travel and traffic data associated with *all* levels of service for the *other parts of the Union transport network*. It should be noted that no specific timeframe is set with regards to the provision of dynamic travel and traffic data. This DR is currently under revision, while the EC proposal is expected by the end of 2022. The current status is presented in Table 2.4. The same table presents the status as of 2016[4].

The progress of implementation of the DR (EU) 2017/1926 is illustrated in Figure 2.4. Ireland was the first country to provide MMTIS-related data early in 2016. Since then, there is a significant increase regarding the countries that have an operational or implemented (partly operational) NAP (23 countries in 2021). It should be noted that a website is available for several countries; however, it appears that data cannot be downloaded or the link to data is not available or under implementation (e.g., Bulgaria, Malta, Romania, Slovakia, Switzerland).

[4] Even though DR (EU) 2017/1926 was adopted in 2017, some countries declared in the context of the EIP+ and EU EIP projects that they had as of 2016 an operational or planned NAP for the first priority action (delegated act) of the ITS Directive (2010/40/EU).

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Table 2.4 Status of NAPs for DR for multimodal travel information services

Country	2016	2017	2018	2019	2020	2021
Austria	Planned	Planned	Planned	Operational	Operational	**Operational**
Belgium	-	-	Planned	Planned	Operational	**Operational**
Bulgaria	-	-	-	-	-	**Not Operational***
Croatia	-	-	Planned	Planned	Planned (in progress)	**Operational**
Cyprus	Planned	Planned	Planned	Operational	Operational	**Operational**
Czech Republic	-	-	Planned	Planned	Operational	**Operational**
Denmark	Planned	Planned	Planned	Planned	Operational	**Operational**
Estonia	-	-	Planned	Planned	Operational	**Operational**
Finland	Planned	Planned	Implementation	Implementation	Operational	**Operational**
France	-	-	Implementation	Operational	Operational	**Operational**
Germany	-	-	Planned	Operational	Operational	**Operational**
Greece	-	Planned	Planned	Planned	Implementation	**Operational**
Hungary	-	-	Planned	Planned	Planned	**Operational**
Ireland	Operational	Operational	Operational	Operational	Operational	**Operational**
Italy	-	-	-	Planned	Planned	**Operational**
Latvia	-	-	Planned	Planned	Planned	**Operational**
Lithuania	-	-	-	Operational	Operational	**Operational**
Luxembourg	-	-	Planned	Operational	Operational	**Operational**
Malta	-	-	-	-	-	**Not Operational***
Netherlands	-	-	Planned	Planned	Operational	**Operational**
Norway	-	Planned	Planned	Operational	Operational	**Operational**
Poland	-	-	-	-	-	**Operational**
Portugal	-	-	-	-	-	**Operational**
Romania	-	-	-	-	Planned	**Implementation ***
Slovakia	-	-	-	-	Planned	**Implementation ***
Slovenia	-	Planned	Planned	Planned	Planned	**Planned**
Spain	-	-	-	Planned	Planned	**Operational**
Sweden	Planned	Planned	Planned	Planned	Operational	**Operational**
Switzerland	-	-	-	-	-	**Planned***
United Kingdom	-	-	-	-	-	**Implementation ****

*Website available but not fully operational or under implementation

**A new NAP is under implementation

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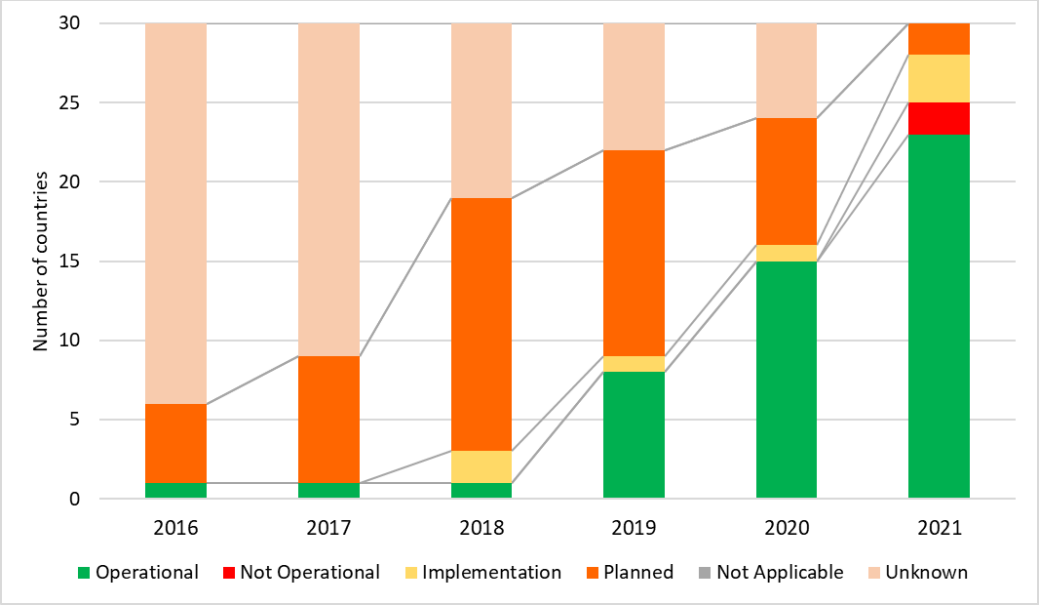

Figure 2.4 Implementation of the DR (EU) 2017/1926 – MMTIS by the Member States.

2.2 Monitoring data availability of European NAPs

Data availability monitoring of European NAPs is based on the categorization of the data elements specified in the annexes of the DRs supplementing the ITS Directive. In this respect, the survey designed in the frame of Task 3.1 asks national responders to indicate whether their NAP exchange (or not) data in relation to each of the adopted data categories.

With respect to **SSTP**, the following data categories are adopted:

- Data for the provision of **static** information about safe & secure truck parking places (e.g., truck parking place location, parking capacity, access road identifiers)
- Data for the provision of **static** information about the safety conditions and equipment of safe & secure truck parking places (e.g., description of security or service equipment)
- Data for the provision of **dynamic** information about the availability of safe and secure truck parking places

With respect to **SRTI**, the following data category is adopted:

- Data for the provision of **dynamic** information about road safety-related events/conditions (e.g., location of event, category of event, provided driving behaviour advice)

With respect to **RRTI**, the following data categories are adopted:

- Data for the provision of **static** information about the road network (e.g., road network links and their physical attributes, road classification, speed limits)

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- Data for the provision of **static** information about the usage of the road network (e.g., traffic circulations plans, freight delivery regulations)
- Data for the provision of **static** information about roadway and roadside infrastructure (e.g., location of tolling stations, location of parking places and service areas, location of public transport stops and interchange points)
- Data for the provision of **dynamic** road status information (e.g., road closures, lane closures, roadworks)
- Data for the provision of **dynamic** traffic information (e.g., traffic volume, travel times, location, and length of traffic queues)

Finally, with respect to **MMTIS**, the following data categories are adopted:

- Data for the provision of **static** information for location search (e.g., address identifiers, park & ride stops, bike-sharing stations)
- Data for the provision of **static** trip plan and auxiliary information (e.g., operational calendar, mapping day types to calendar dates)
- Data for the provision of **static** information for trip plan computation (e.g., timetables, network topology and routes, pedestrian network, and accessibility facilities)
- Data for the provision of **static** information about traveller services (e.g., where and how to buy tickets for scheduled modes, how to book car sharing, how to pay tolls)
- Data for the provision of **static** information for detailed common standard and special fare queries (e.g., passenger classes of user such as adult, child, student, veteran, impaired access and qualifying conditions and classes of travel such as 1st, 2nd)
- Data for the provision of **dynamic** passing time, trip plan, and operational information (e.g., real-time status information — delays, cancellations, current road link travel times)
- Data for the provision of **dynamic** availability of mobility services and relevant infrastructure (e.g., car-sharing availability, bike sharing availability, car parking spaces available)
- Data for the provision of other information (i.e., information not necessarily covered by the above data categories)

2.2.1 Data availability for Safe and Secure Truck Parking

This section provides information related to data availability for safe and secure truck parking areas across Europe. The availability of data considering the adopted data categories mentioned in the introductory part of this section, is depicted in Figure 2.5, **Fehler! Verweisquelle konnte nicht gefunden werden.**, and Figure 2.7. On the other hand, Figure 2.8 illustrates the big picture, indicating the number of countries in which data according to the adopted categories is available. Detailed information per country is provided in Annex II – Implemented data standards for SSTP per country.

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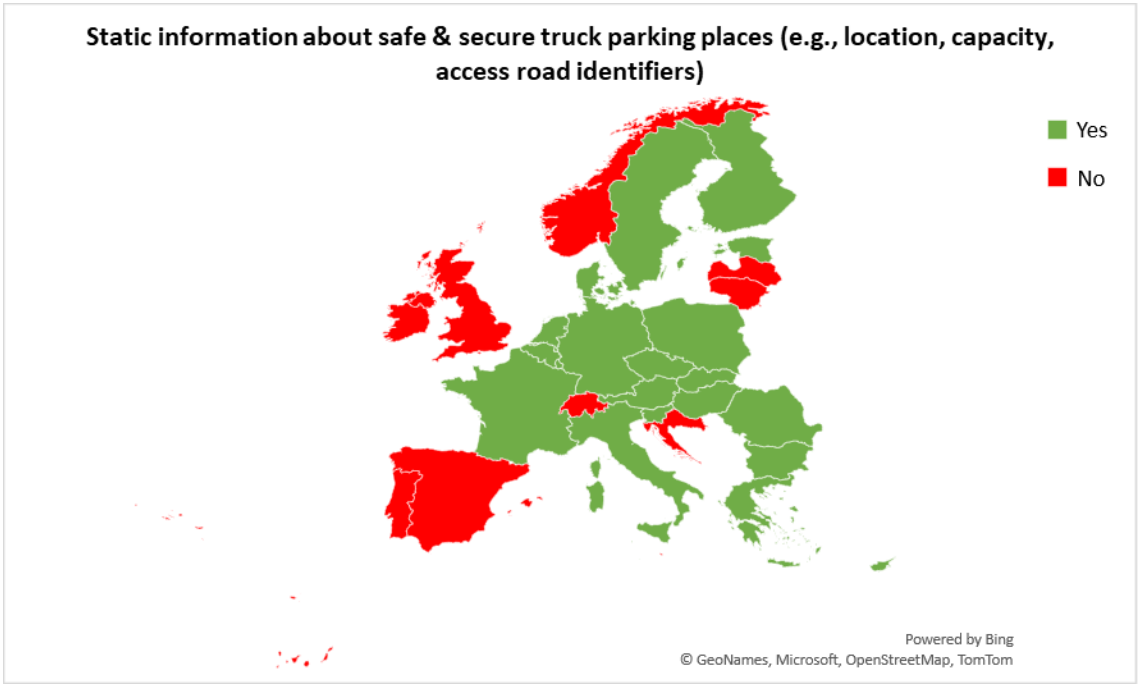

Figure 2.5 Availability of data for the provision of static information about safe & secure truck parking places per country.

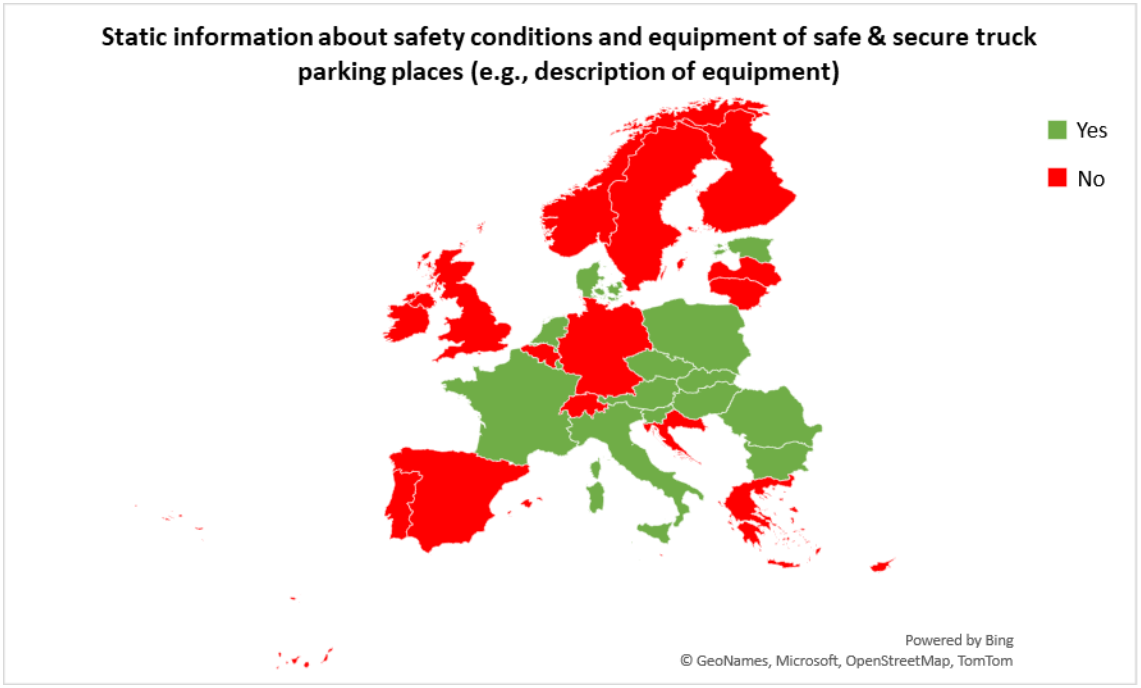

Figure 2.6 Availability of data for the provision of static information about the safety conditions and equipment of safe & secure truck parking places per country.

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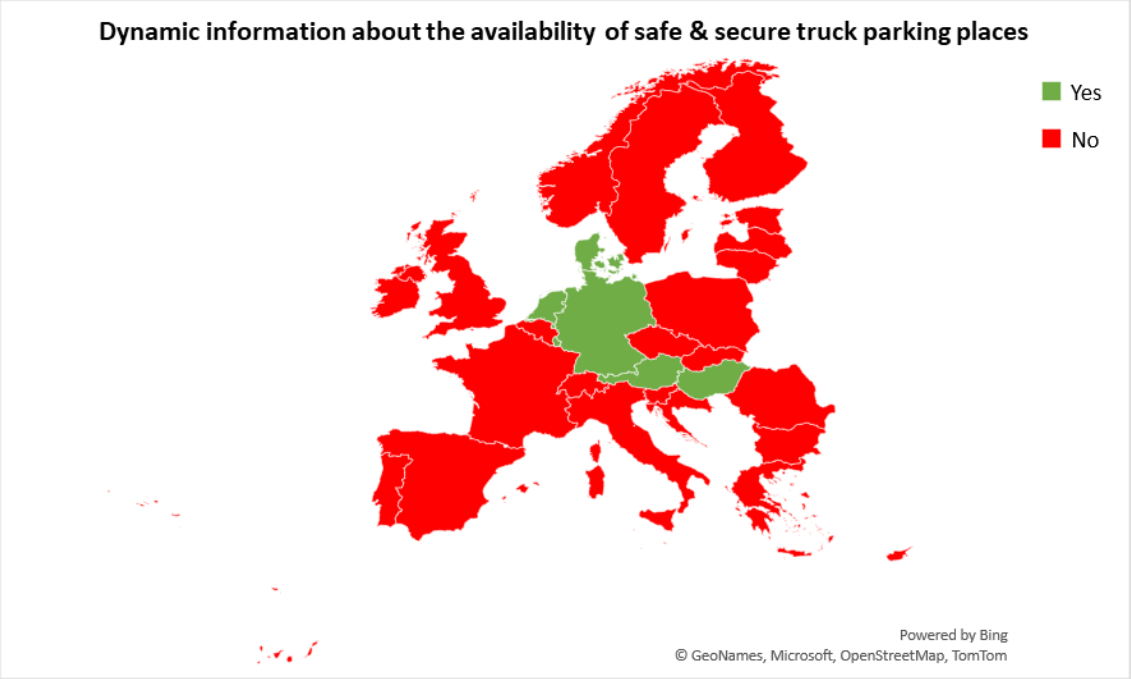

Figure 2.7 Availability of data for the provision of dynamic information about the availability of safe & secure truck parking places per country.

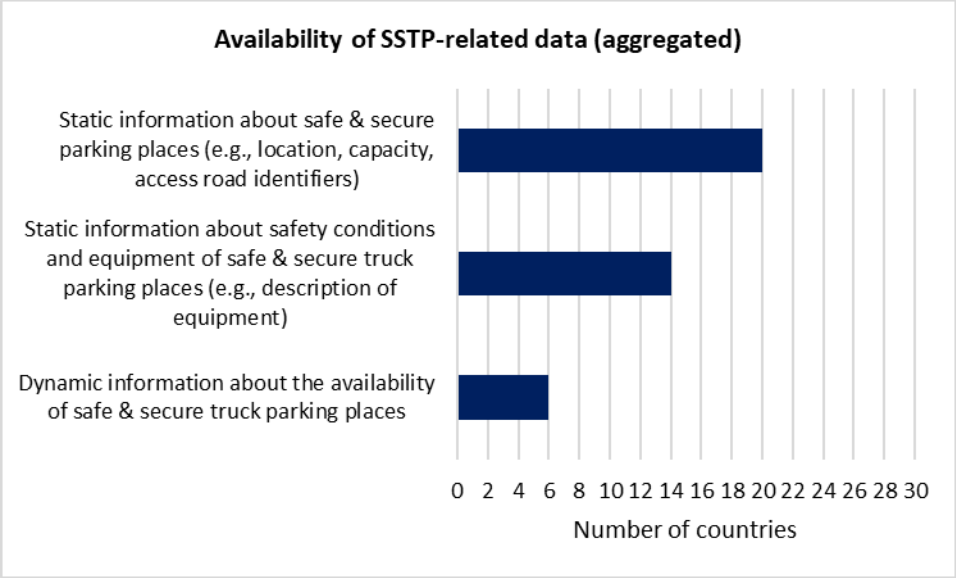

Figure 2.8 Overall number of countries providing SSTP-related data per adopted data category.

As it can be observed from the Figure 2.8, there are only 6 countries that provide dynamic data with regard to the availability of safe & secure truck parking places. On the other hand, static data is available in more countries. In particular,

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14 countries provide static data with regard to the safety conditions and equipment of safe & secure truck parking places, while 20 countries provide static data about the safe & secure truck parking places per se.

2.2.2 Data availability for Safety-Related Traffic Information

This section provides insights related to data availability for safety-related traffic information. The availability of data considering the only adopted data category, is depicted in **Fehler! Verweisquelle konnte nicht gefunden werden.**. On the other hand, Figure 2.10 provides an overview of the number of countries in which data according to the adopted category is available. Detailed information is provided in Annex III – Implemented data standards for SRTI per country.

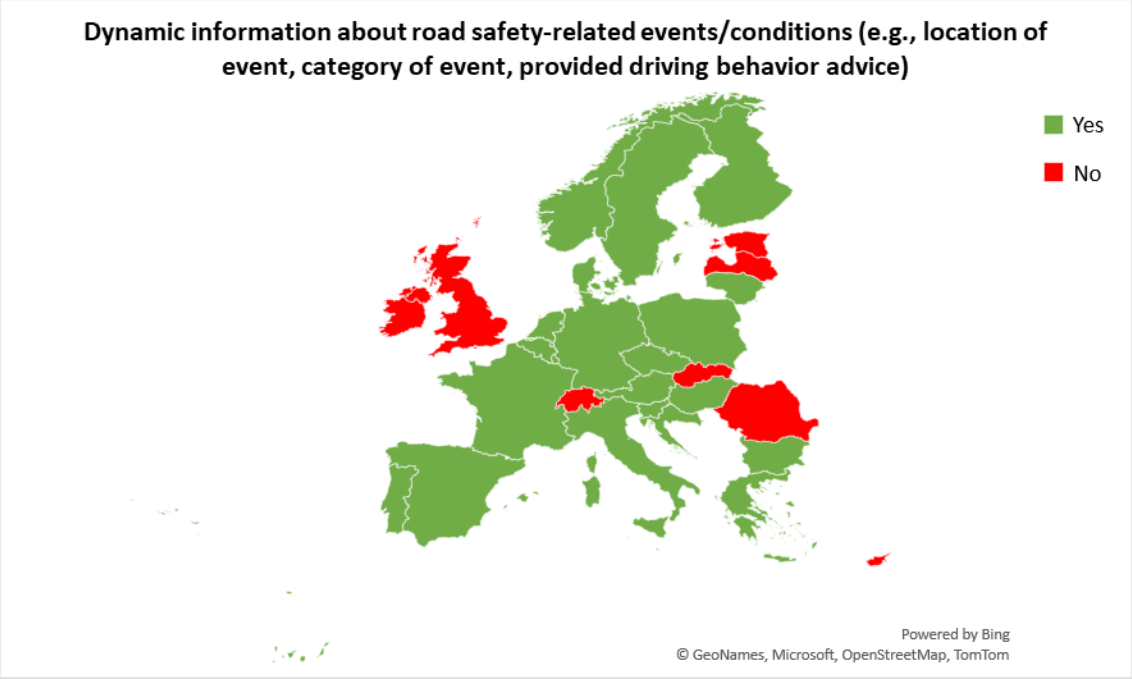

Figure 2.9 Availability of data for the provision of dynamic information about road safety-related events/conditions per country.

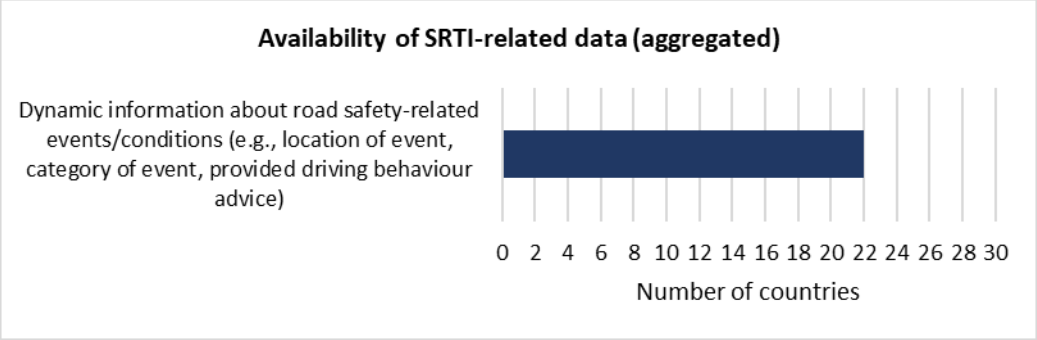

Figure 2.10 Overall number of countries providing SRTI-related data per adopted data category.

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As it can be seen from the above figures, dynamic information about road safety-related events/conditions is made available by 22 countries, while the remaining 8 countries do not provide such information through their NAP. This result is to a certain extent contradictory to the status of NAPs for SRTI and should be further investigated in a next version of the current report.

2.2.3 Data availability for Real-Time Traffic Information

This section provides information regarding data availability for real-time traffic information. The availability of data considering the adopted data categories mentioned in the introductory part of this section, is depicted in Figure 2.11, Figure 2.12, Figure 2.13, Figure 2.14, and Figure 2.15. On the other hand, Figure 2.16 illustrates the number of countries in which data according to the adopted category is available. Detailed information is provided in Annex IV – Implemented data standards for RTTI per country.

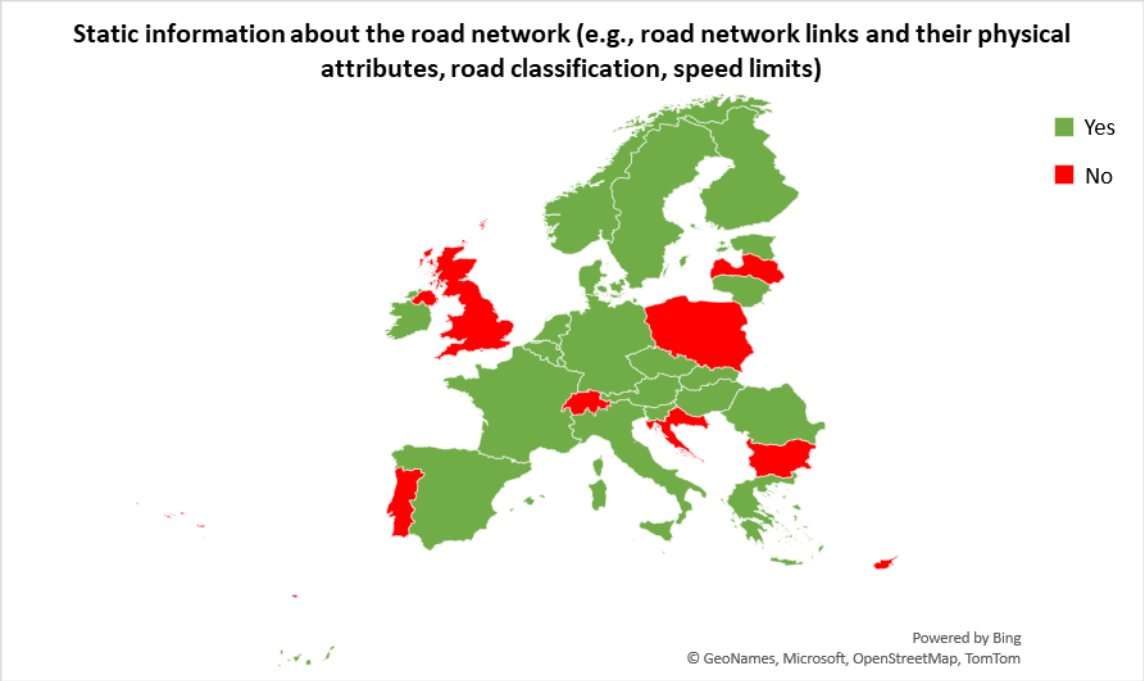

Figure 2.11 Availability of data for the provision of static information about the road network per country.

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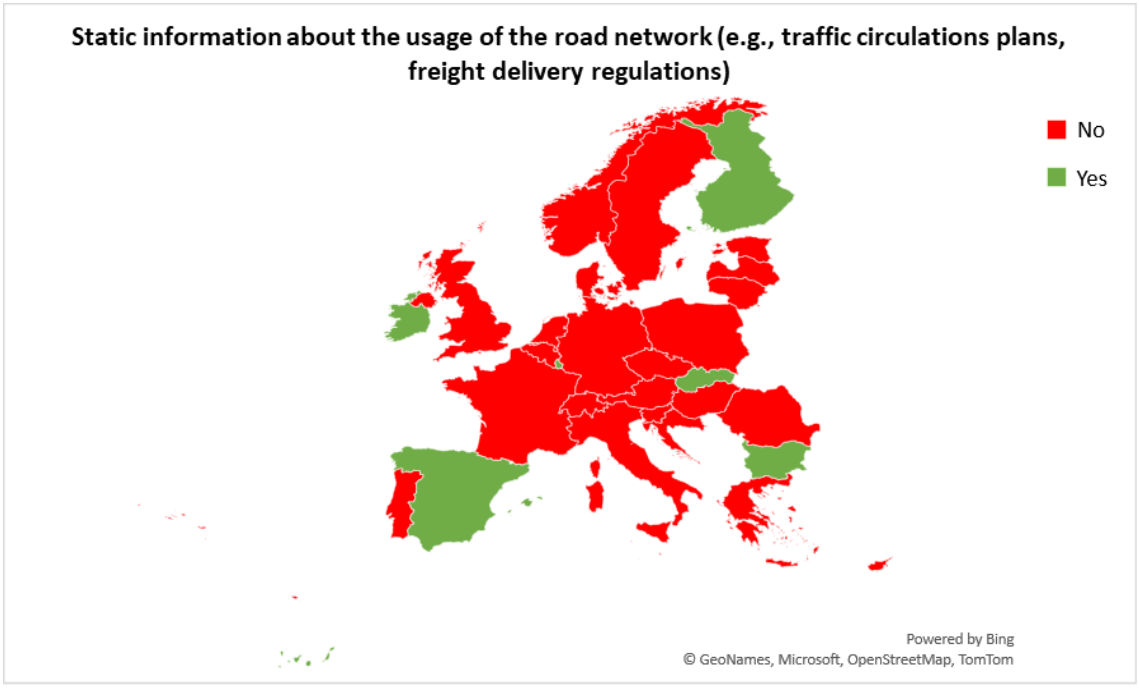

Figure 2.12 Availability of data for the provision of static information about the usage of the road network per country.

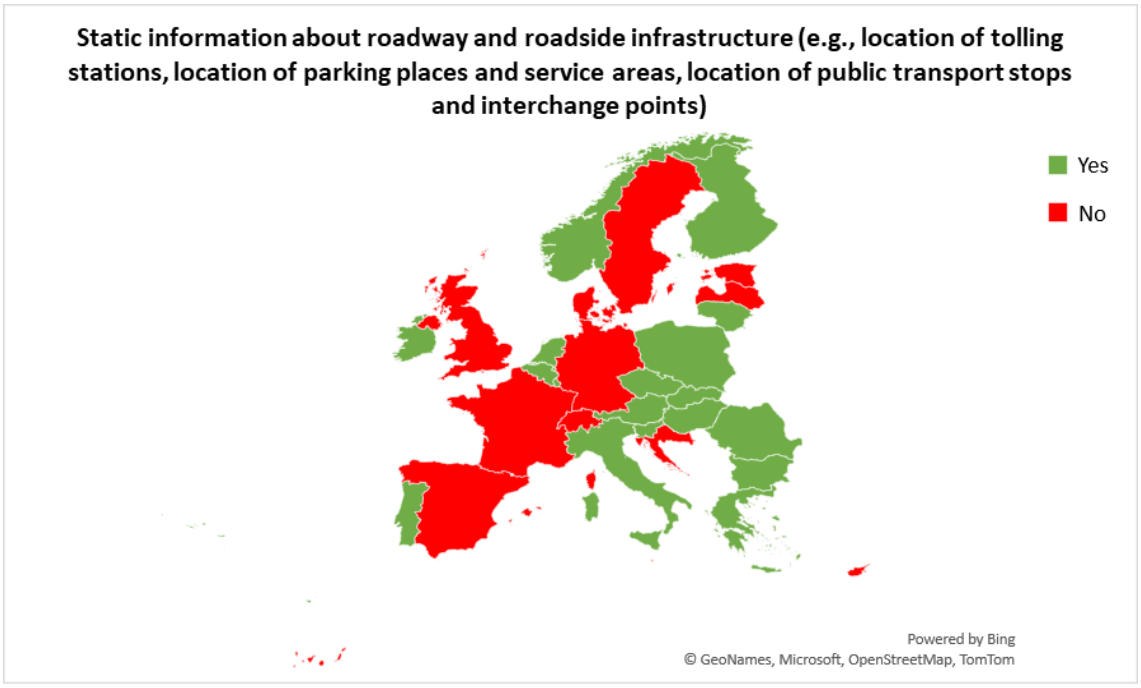

Figure 2.13 Availability of data for the provision of static information about roadway and roadside infrastructure per country.

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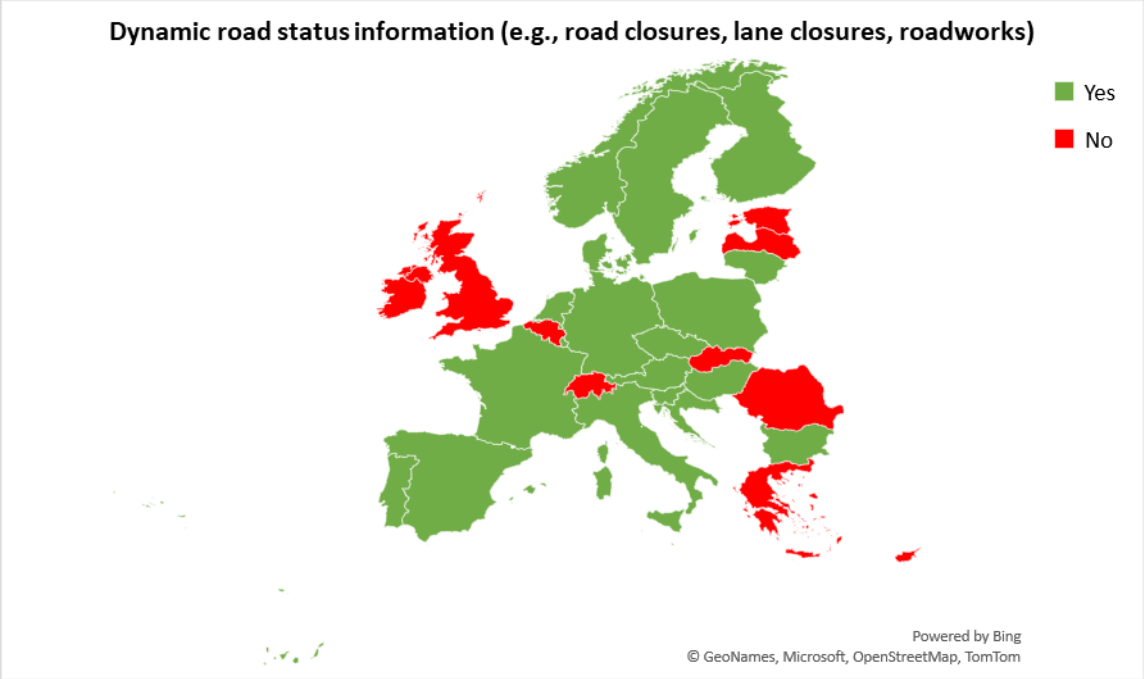

Figure 2.14 Availability of data for the provision of dynamic road status information per country.

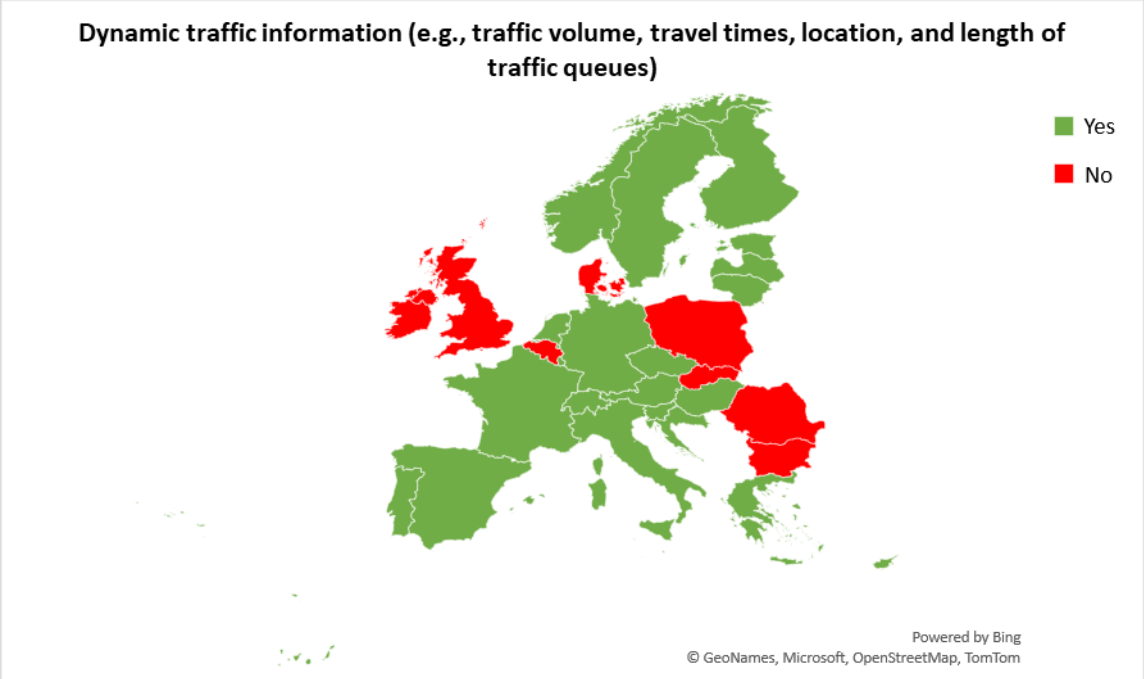

Figure 2.15 Availability of data for the provision of dynamic traffic information per country.

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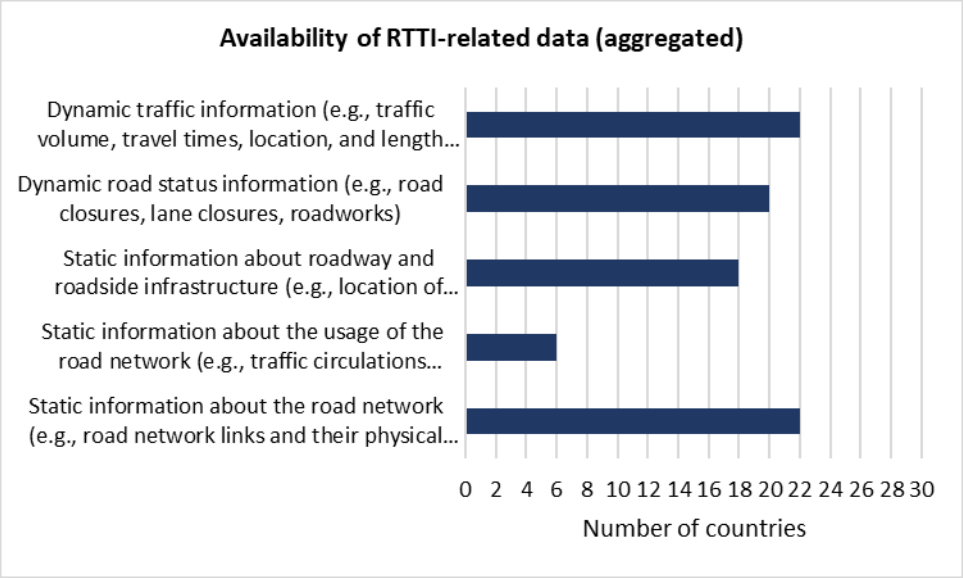

Figure 2.16 Overall number of countries providing RTTI-related data per adopted data category.

The overview of the RTTI-related data availability across Europe depicts that the RTTI-related data is more common than those of the other DRs. In particular, it appears that 22 countries provide both static data with regard to the road network and dynamic data with regard to prevailing traffic conditions. Furthermore, 20 countries provide dynamic data with regard to road status, while 18 countries provide static data with regard to roadway/roadside infrastructure (e.g., location of tolls). Static information about the usage of the road network is the less available, with only 6 countries providing relevant data through their NAP.

2.2.4 Data availability for Multimodal Travel Information Services

This section provides information related to data availability for multimodal travel information services. The availability of data considering the adopted data categories mentioned in the introductory part of this section, is depicted in Figure 2.17, Figure 2.18, Figure 2.19, Figure 2.20, Figure 2.21, Figure 2.22, and Figure 2.23. On the other hand, Figure 2.24 illustrates the number of countries in which data according to the adopted categories is available. Detailed information is provided in Annex V – Implemented data standards for MMTIS per country.

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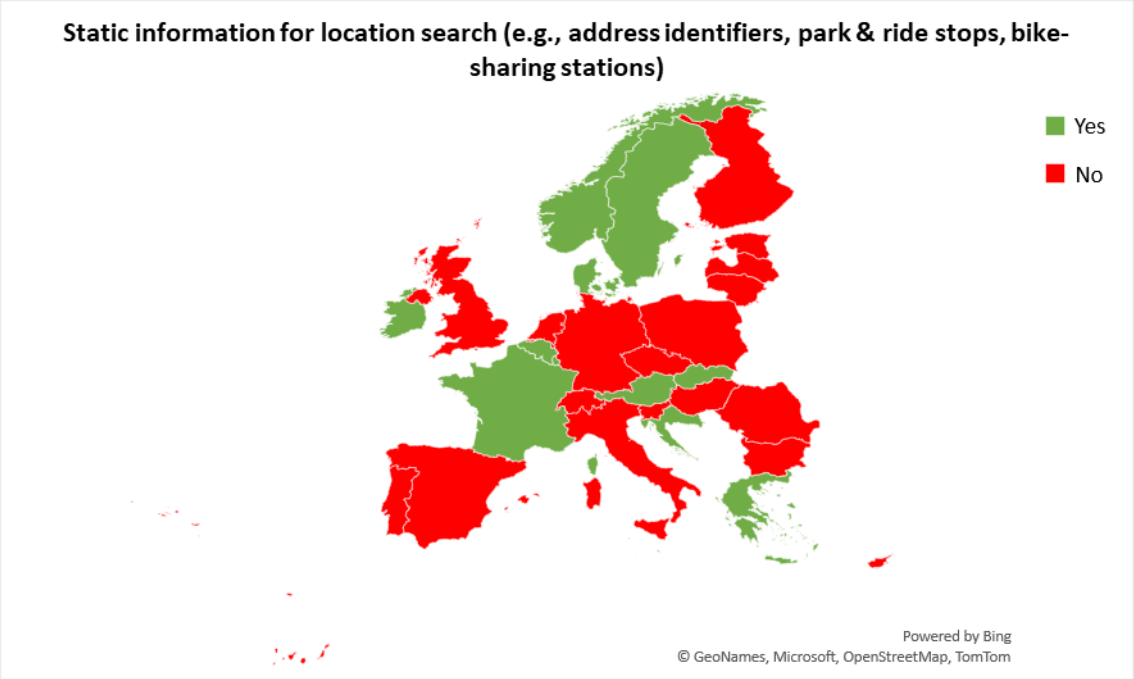

Figure 2.17 Availability of data for the provision of static information for location search per country.

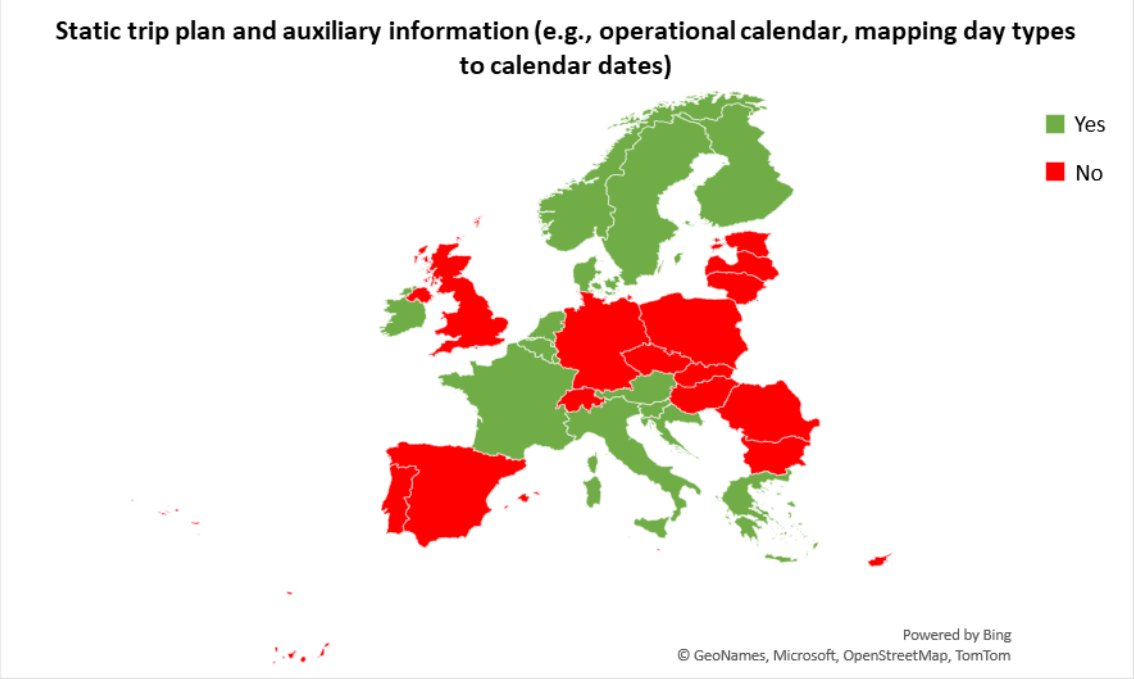

Figure 2.18 Availability of data for the provision of static trip plan and auxiliary information per country.

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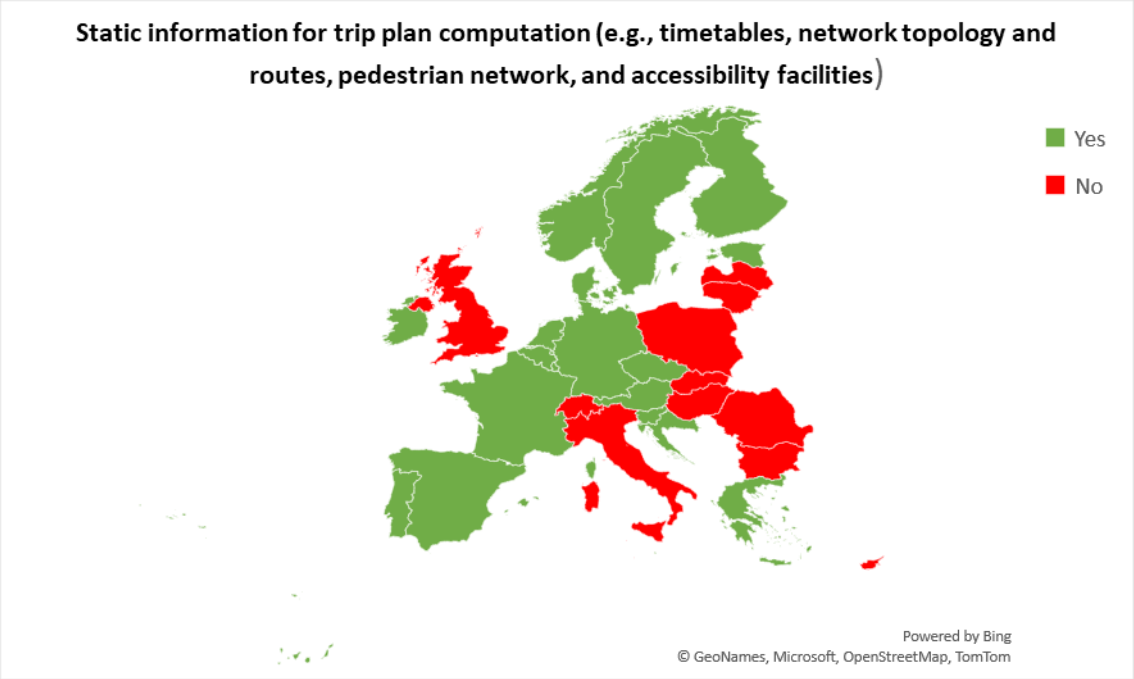

Figure 2.19 Availability of data for the provision of static information for trip plan computation per country.

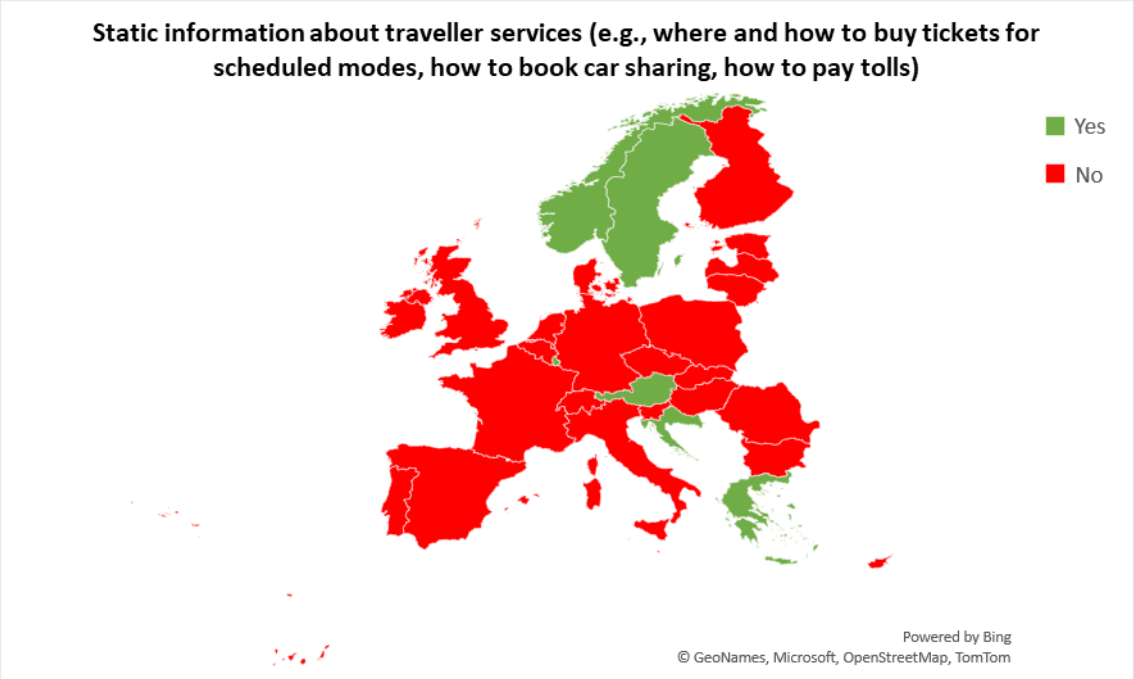

Figure 2.20 Availability of data for the provision of static information about traveller services per country.

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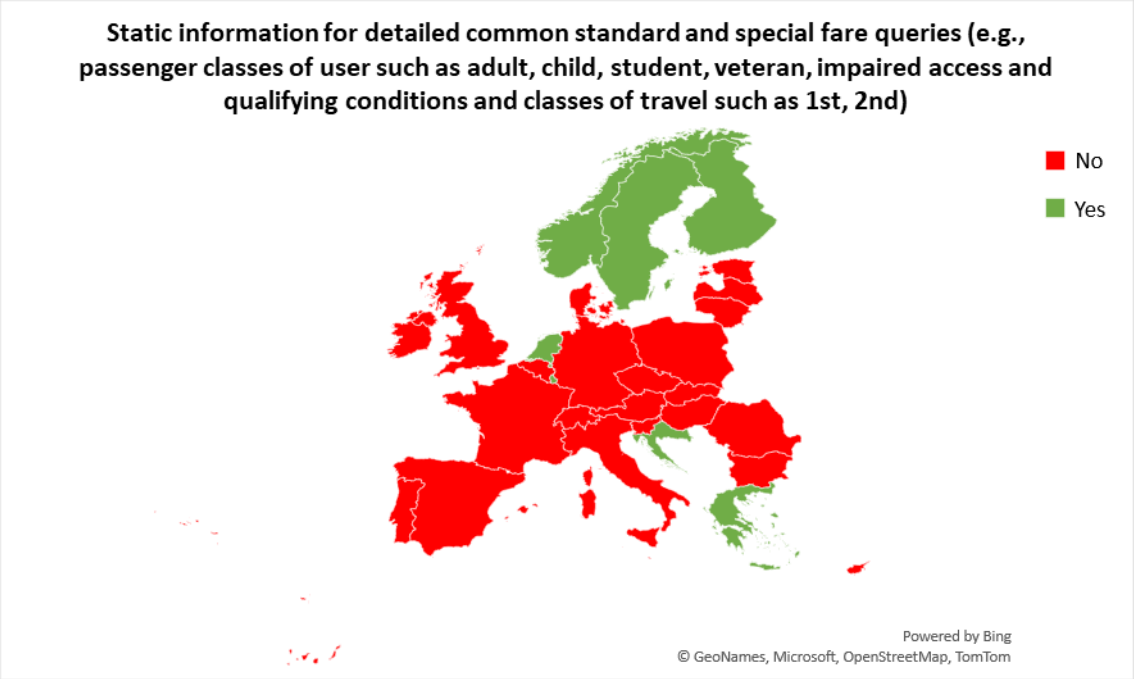

Figure 2.21 Availability of data for the provision of static information for detailed common standard and special fare queries per country.

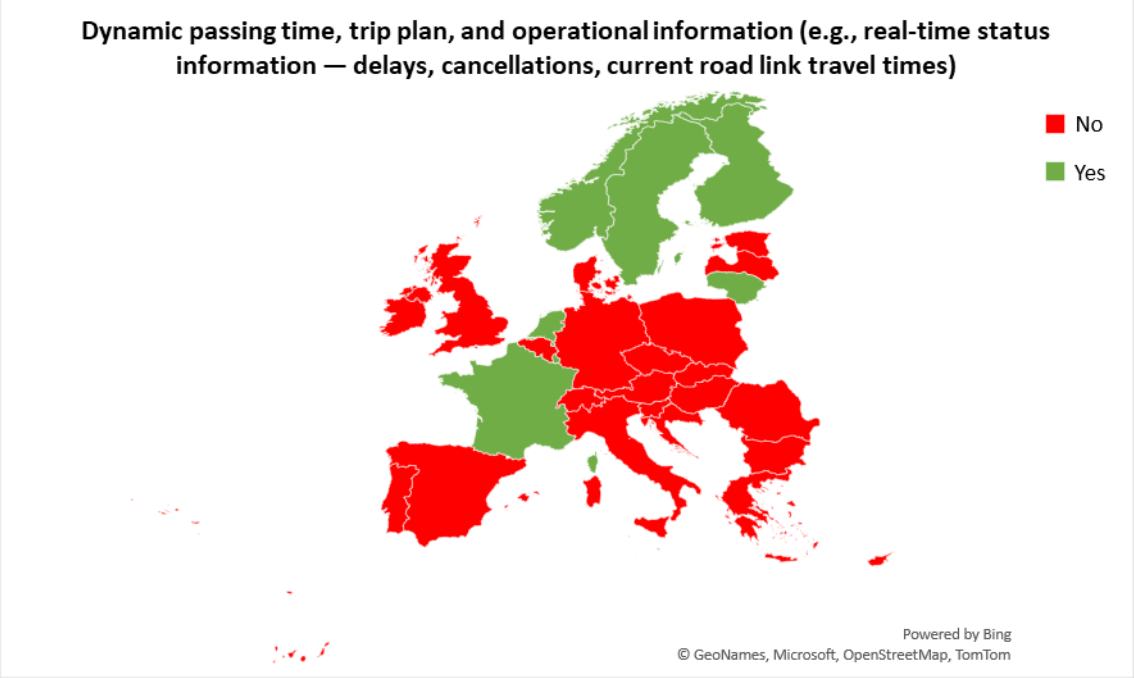

Figure 2.22 Availability of data for the provision of dynamic passing times, trip plan, and operational information per country.

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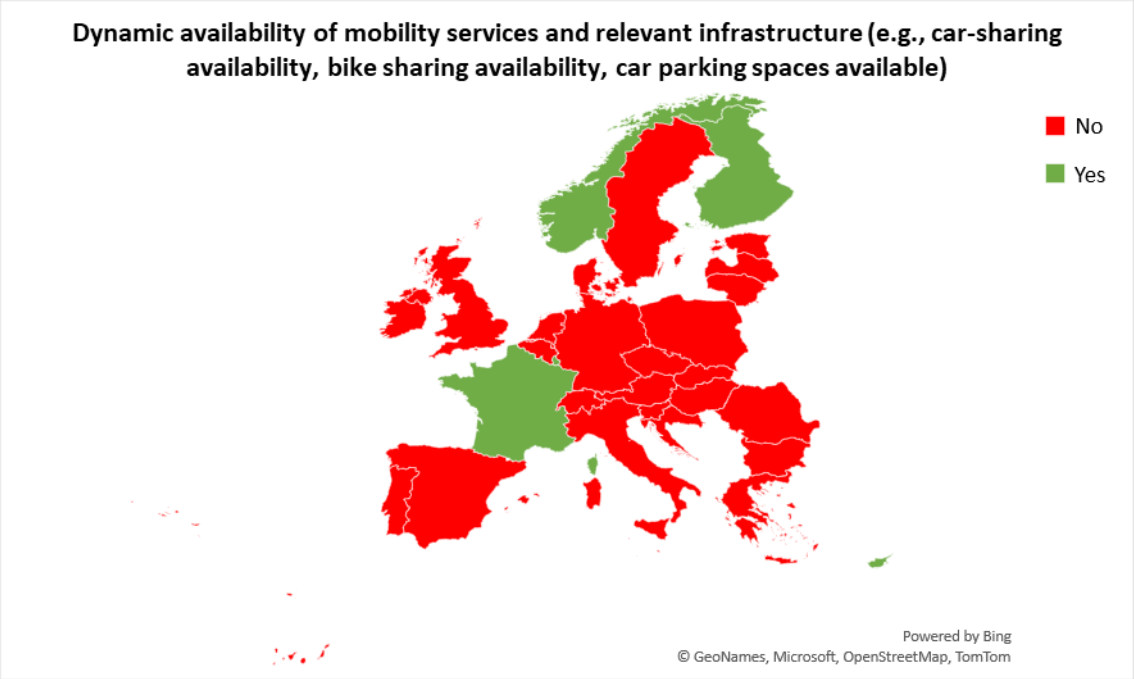

Figure 2.23 Availability of data for the provision of dynamic availability of mobility services and relevant infrastructure per country.

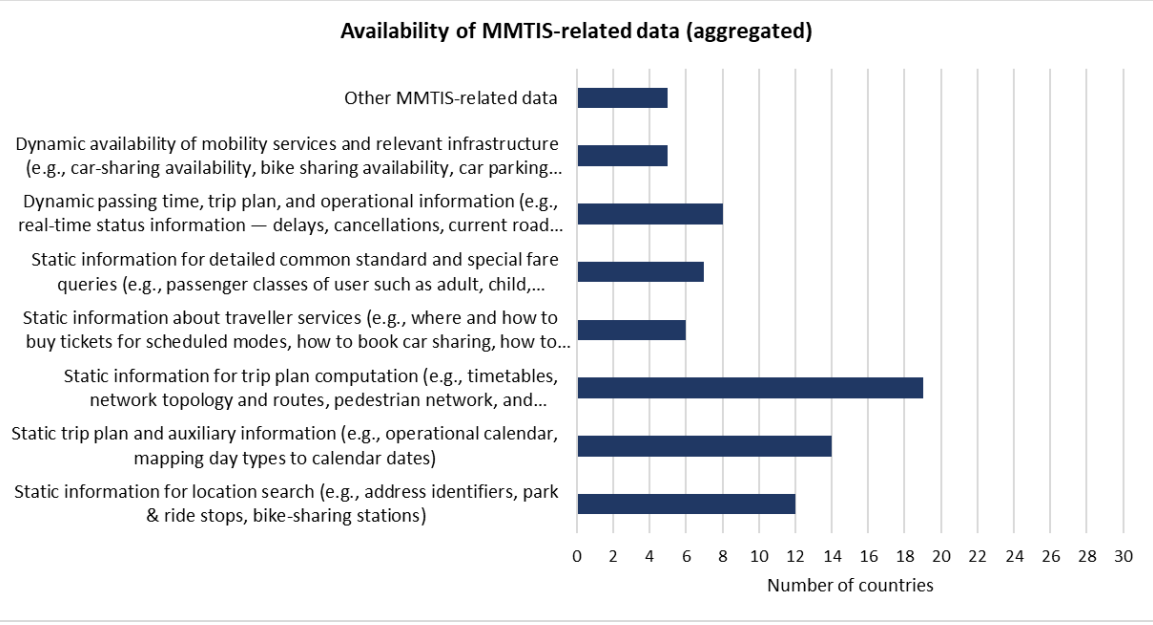

Figure 2.24 Overall number of countries providing MMTIS-related data per adopted data category.

As it can be seen from the above figures, there is an observable discrepancy regarding which types of data are made available through the European NAPs. In particular, certain data categories, such as static information for trip plan computation, static trip plan and auxiliary information, as well as static information for location search,

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are fairly covered by the European NAPs (i.e., data falling into the scope of these categories are made available by the NAP of 12 to 19 countries). On the other hand, some other data categories, such as static information about traveller services, static information for detailed common standard and special fare queries, dynamic passing time, trip plan, and operational information, as well as dynamic availability of mobility services and relevant infrastructure, are covered to a very limited extent by the European NAPs (i.e., data falling into the scope of these categories are made available by the NAP of 5 to 8 countries).

Comparing to the deadlines set by the DR, delays can be observed especially for some static data under the level of service 1 (LOS 1), which was expected to be provided by the end of 2019. However, the published information in several countries might concern already the urban network which is a requirement for a later stage of implementation. This fact can be expected as in MMTIS the required information is very rich, concerns all modes (some of them relevant only for urban network), and needs to be collected by many different operators, from different mobility sectors.

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3 Common formats and standards

The first part of this chapter provides an overview of the key data standards as mentioned in the DRs. Subsequently, an overview of the responses to the sections of the survey regarding the implementation of data standards is provided.

3.1 DATEX II

DATEX II is an electronic language and data standard used in Europe for distributing and exchanging traffic-related information between road traffic management authorities. More particularly, DATEX II focuses on standardizing the interface between traffic control and information centres, supporting that way the vision of an interoperable cross-border data exchange. It provides support by having already uploaded a technical documentation. It also uses a Unified Modelling Language (UML) model version 2 as specified in ISO/IEC 19505-1:2012. An eXtensible Markup Language (XML) tools are also available for reinforcing the harmonized exchange of road and traffic information. Both road operators and data and service providers use the exchanged information to deliver a comprehensive service to the end users.

DATEX II domain comprises of content-side and exchange-side. Content side, aimed towards functional users, allow adaptation of UML models based on local situation. Extensions of enumerations and/or minor attribute extensions to the UML model can be created. The exchange side, aimed towards developers, enables correct exchange of data. It includes a selection of correct exchange profile and linking the functional exchange profile to respective data profile.

3.1.1 DATEX II Organisation

DATEX II is currently maintained by a WG of NAPCORE. The project management of DATEX II is supported by a Change Management Board (CMB), which is responsible for defining the requirements and task prioritization, as well as approving annual work plans and progress reports. On the other hand, the Technical Board (TB) is responsible for managing the technical content, its quality and preparing annual work plans and progress reports. Sub Working Group Leader (SWGL) are responsible for daily management, administration, communication and monitoring of technical and financial progress as well as for delivering the milestones on time. Finally, a Stakeholder Advisory Board (STAB), comprising of external members, provides a platform to stay connected with the outside environment regarding new developments and possible new requirements in the ITS domain and supports dissemination and feedback. More information about the activities is available at the official website https://datex2.eu/.

3.1.2 DATEX II Recommended Profiles

The DATEX II standard supports the entire road traffic and travel data ecosystem and different types of services.

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DATEX II supports profiling to specify which part of the DATEX II model is actually being used by the data provider. A profile is a subset of the entire standard, only containing the relevant data-elements required for a specific use case (DATEX II, no date c).

The EU Delegated Regulations are supported by pre-created Recommended Reference Profiles (RRP's). These RRP's contain the minimum set of data-elements required to provide the information meant by the specific data category in the specific delegated regulation. In DATEX II version 3.x the predefined profiles were extended to allow description of specific applications that are defined by DATEX II set of standards. It shall be noted that Data providers could add elements from the model above the RRP or could extend the model to suit specific needs of the provider.

3.1.3 DATEX II Suite of Standards

DATEX II establishes specifications for data exchange among actors like Traffic Information Centres, Traffic Control/Management Centres, Service Providers and other actors like car park operators by defining data-content standards and exchange protocols, as illustrated in Figure 3.1. DATEX II is a multi-part standard maintained by CEN Technical Committee 278, Road Transport and Traffic Telematics. Nine parts of DATEX II data content standards are defined in the multi-part CEN specification number 16157, where six parts are approved as European standards and three are published as CEN technical specifications.

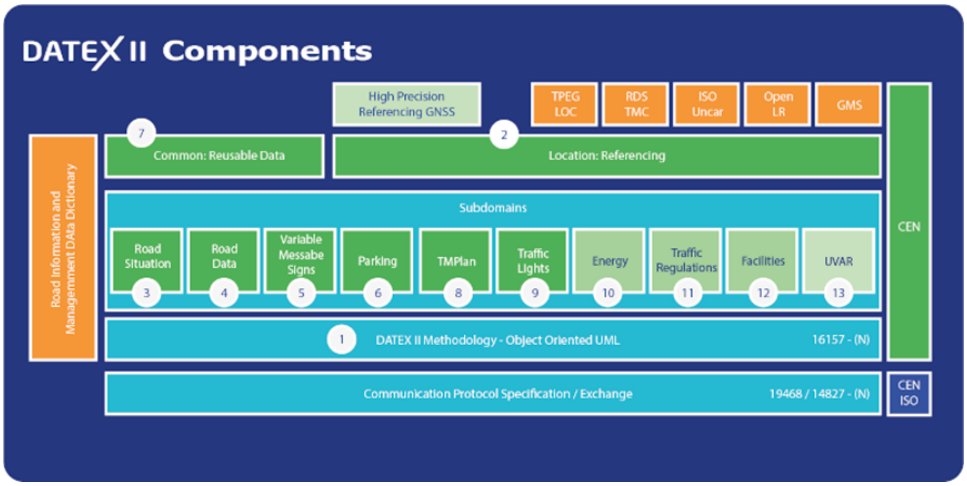

Figure 3.1.DATEX II Components (DATEX II, no date).

DATEX II Methodology, Part 1, describes the rules of the standard, Part 2 describes the chosen location referencing method and Part 7 describes common information elements. Parts 3 to 6, 8 and 9 describe the data model for the exchange of information about a certain type of information. There are parts currently in development that focus on Energy (charging infrastructure), Management of Electronic Traffic Regulations, Urban Access Vehicle Regulations and Logistics (DATEX II, no date d).

Communication Protocol Specification/Exchange defines a common set of data exchange specifications to ensure interoperability, reduction of risk, reduction of the cost base, promotion of open marketplaces and many social, economic and community benefits. The model driven approach is chosen to describe exchange as abstract models

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which are named Platform Independent Model (PIM), in which modelling of exchange features is done by describing interaction among systems and subsystems as Exchange Patterns (EP). The PIM can be afterwards described for a specific technology as Platform Specific Model (PSM) (DATEX II, no date e).

3.2 Transmodel, NeTEx & SIRI

The normative Public Transport Reference Data Model (Transmodel)[5] EN 12896: 2006 covers Network topology representation, Scheduling, Operation monitoring, Fare management, Passenger information and Driver management information domains. It involves all different transport modes, traditional and alternative ones, such as bus, train, tram, metro, vehicle- sharing, and other intermediate or last-mile solutions.

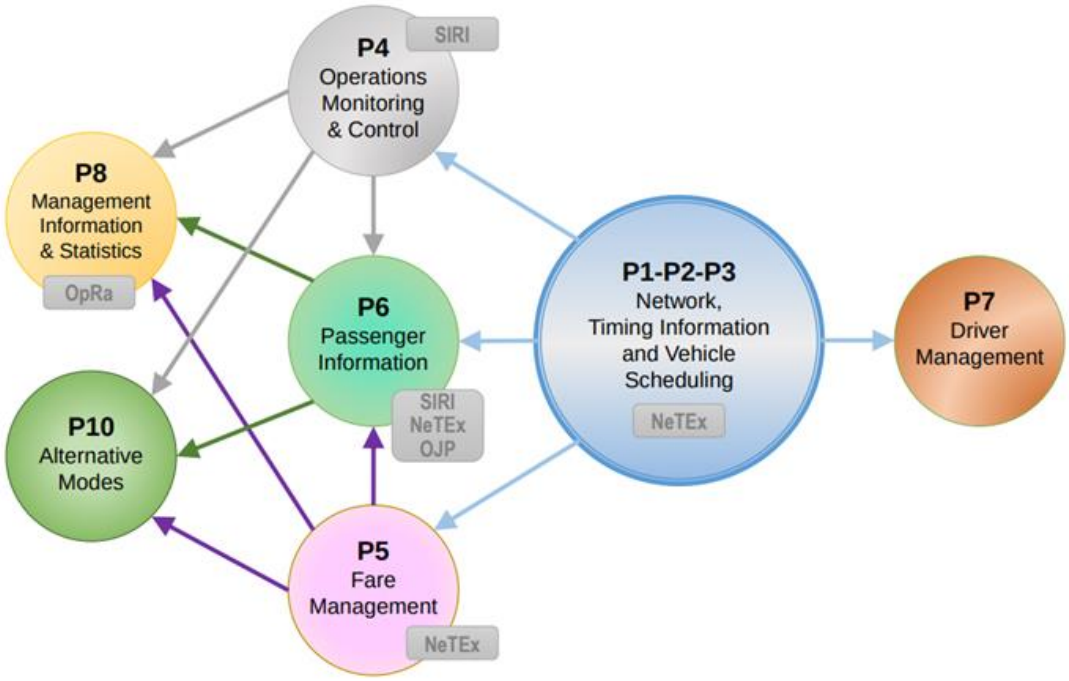

Figure 3.2 Transmodel Parts and relevance to underlying technical standards. Besides NeTEx and SIRI, there is OpRa (Operational Raw Data and Statistics, under development (SG10) and Distributed Journey Planning (OJP), CEN TS 17118 (SG8).

Transmodel is viewed in the context of the European ITS Directive 2010/40/E (Priority Action A, supplementing the European Directive 2010/40/EU with regard to the provision of EU-wide multimodal travel information services), since it facilitates the definition of the necessary requirements to make EU-wide multimodal travel information services accurate and available across borders.

Transmodel provides a consistent common language, with definitions, data structures, semantics. It is a conceptual model of common public transport concepts, and relationships that can be used to build on different types of public

[5] https://www.transmodel-cen.eu/

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transport information system. Subsequently, it underpins the definition of data exchange standards that enable the sharing and provision of accurate and interoperable public transport information across organisation- and system-boundaries. It is also used to rationalise national standards to allow for harmonisation and interoperability. Finally, it enables the comparison and understanding of the different models. **Fehler! Verweisquelle konnte nicht gefunden werden.** presents the Transmodel ecosystem.

Transmodel has been developed under the aegis of CEN (Comité Européen de Normalisation) and a number of CEN technical data standards have been defined based on it. In particular, the most used technical standards currently are the Service Interface for Real-time Information (CEN SIRI) and Network, Timetables and Fare Exchange (CEN NeTEx).

Based on the MMTIS DR, for what concerns the exchange of static scheduled data (such as public transport, long distance coach and maritime including ferry), the relevant data in the NAP should use the NeTEx CEN/TS 16614 and the subsequent upgraded versions or any machine-readable format fully compatible. For what concerns dynamic data, the relevant data in the NAP should be SIRI CEN/TS 15531 and subsequent upgraded versions or any machine-readable format fully compatible should be used.

3.2.1 Organisation of Transmodel & underlying standards NeTEx & SIRI

CEN, Europe's standardisation body, divides its work into committees covering different aspects of industry and technology, with a well-defined process and documentation formats. The Transmodel standard (EN12895) is formally produced by Technical Committee 278 (TC278), Working Group 3 (WG3), Subgroup 4 (SG4). Other TC278 WG3 subgroups handle the related standards:

- SIRI-Service interface for Real-time Information, CEN TS 15531 1-5 (SG7)
- NeTEx: Network, Timetables and Fare Exchange, CEN TS 16614-1 to 3 (SG9), extended to cover the Alternative Modes (CEN TS 16614-5)

These groups are responsible to manage change requests and run updates to reply to the continuously evolved needs of the public transport sector as a whole, supporting multimodal mobility systems. In those groups, multimodal mobility experts and public transport specialists contribute, representing European countries through their national assignments. The adoption of the standards and the facilitation of further developments is supported by the CEF Programme (currently supported by Programme Support Action 2 – DATAPT).

3.2.2 Network Timetable Exchange – NeTEx

NeTEx provides means to exchange data for passenger information such as stops, routes, timetables and fares, together with related operational data. It can be used to collect and integrate data from many different stakeholders, and to reintegrate it as it evolves.

NeTEx provides a modular W3C XML schema for public transport information data and includes uniform mechanisms for versioning and identifying entity instances within a global context. The NeTEx XML documents can be exchanged either as asynchronous bulk exchange of static data or by using dynamic APIs. Figure 3.3 presents the functional scope of NeTEx.

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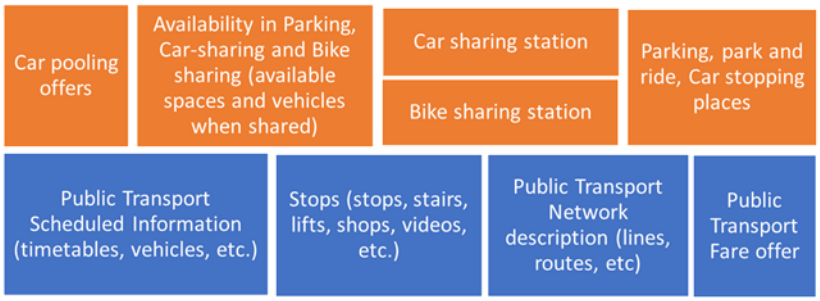

Figure 3.3 Functional scope of NeTEx .Source DATA4PT

3.2.2.1 NeTEx Recommended Profiles

The profile contains information such as details of used services, details of the objects used in an exchange, details on the options proposed by the standard, details on optional elements. NeTEx profiles are available to facilitate the implementation of the standard and to improve interoperability by focusing only on the elements that are needed and to fill small gaps voluntarily left by the standard to enable customisation. The European Passenger information profile (EPIP – NeTEx Part 4)[6] is a profile focusing on minimum information required to be exchanged to feed passenger information systems (stop displays, mobile applications, journey planners etc.) based on DR MMTIS 2017/1926. The European Passenger Information Accessibility Profile (EPIAP- NeTEx Part 6)[7] focuses on the accessibility facilities in stops, stations, vehicles (e.g., ramps, lifts, escalators etc.) for static data, according to MMTIS DR requirements. The respective real time data for both profiles are included in SIRI. The European profiles aim to facilitate the implementation of NeTEx but also to be the basis for the specification of national or local profiles, ensuring interoperability between countries and regions. The EU profiles consider also the existing national profiles, whenever exist, to focus on the common needs between countries and to adopt best approaches. An overview of the existing profiles is available here. Collaboration between MS in specifying national profiles is expected in order to benefit from the existing assets and acquired experience.

3.2.2.2 NeTEx Suite of Standard

NeTEx is divided into six parts, each covering a functional subset of the CEN Transmodel for Public Transport Information. Part 1 describes public transport network topology exchange format where all mass public transport modes are considered. Part 2 includes public transport scheduled timetables exchange format and Part 3 covers the public transport fares exchange format. It describes the many various possible fare structures that arise in public transport (for example, flat fares, zonal fares, time dependent fares, etc.), any specific terms or conditions and fare exchange rules. Part 4 deals with the passenger information European profile which focuses on information relevant to feed passenger information services and excludes operational and fares information (NeTEx, no date b). Part 5 describes the Alternative modes exchange format and focuses on, but not limited to,

[6] https://netex-cen.eu/, https://github.com/NeTEx-CEN

[7] https://netex-cen.eu/ (under voting from CEN members during the preparation of this report).

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car/cycle sharing, carpooling and 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) (NeTEx, nodate a).

3.2.3 SERVICE INTERFACE FOR REAL TIME INFORMATION – SIRI [8]

SIRI is the Service interface for real-time information relating to public transport operations. SIRI supports information exchange of relevance to public transport services for passenger information and AVMS systems. It provides an abstract model of common public transport concepts and data structures that enables the exchange of information about the planned, current, or projected performance of real-time public transport operations between different computer systems. SIRI complements NeTEx, which provides the scheduled information, by providing the real-time information.

The information provided by SIRI can be used to provide real time-departure from stop and progress information about individual vehicles, to manage the movement of buses roaming between areas and the synchronisation of guaranteed connections, to exchange planned and real-time timetable updates, to distribute status messages about the operation of the services and to provide performance information to operational history and other management systems (SIRI-CEN, no date).

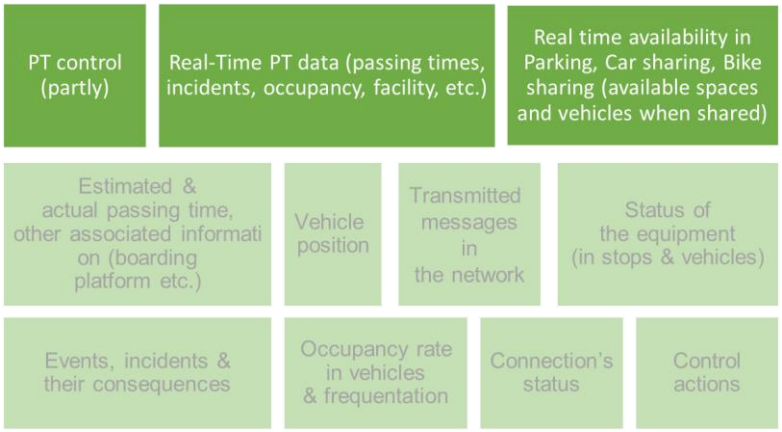

Figure 3.4 Functional scope of SIRI (data categories and subcategories - in light green). Source DATA4PT

The SIRI protocol is implemented as XML services, but JSON, SOAP or REST also supported. It comprises of a generic communication framework and eight specific functional services. The eight services are, Production Timetable Service (PT), Estimated Timetable Service (ET), Stop Timetable Service (ST), Stop Monitoring Service (SM), Vehicle Monitoring Service (VM), Connection Timetable Service (CT), Connection Monitoring Service (CM), General Message Service (GM), Situation Exchange Service (SX) and Facility Monitoring service (FM) (SIRI-CEN, no date a).The communication framework provides a uniform architecture for defining data messages either as request/response pairs or as publish/subscribe services. The payload content model is separated from the messaging aspects so that the same payload content can be used in both request and subscription services and the same common messaging components can be used for all the different functional services. Common functions for subscription management, service monitoring, content level authentication, etc are provided (SIRI, no date a).

[8] http://siri-cen.eu, https://github.com/SIRI-CEN

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3.2.3.1 SIRI PROFILES

SIRI also supports the specification of profiles to adapt to specific needs, defining subsets of data and dedicated rules for some specific use cases. The European Real-Time Passenger Information Profile (SIRI - Part 7)[9] is designed to complement the NeTEx EPIP profile with real time information and is therefore named EPIP-RT: both profiles are well articulated and can be used seamlessly (at national level in NAPs -National Access Points-or at any local level where both scheduled and real time information are consistently provided). The profile describes a minimal level, that must be met to fulfil the obligations under DR (EU) 2017/1926. Moreover, national and local profiles are available or are planned to be developed. An inventory of the current status of SIRI profiles is available here.

3.2.3.2 SIRI SUITE OF STANDARD

SIRI is a CEN Technical Standard and is divided into five parts, each compliant with functional subset of CEN Transmodel, as illustrated in Figure 3.5. Part 1 describes the context and framework whereas Part 2 covers the communications infrastructure. The functional service interfaces are defined in Part 3. Part 4 and Part 5 are related to the operations monitoring and control of Transmodel and defines, functional service interfaces for Facility Monitoring and Situation Exchange, respectively (SIRI, no date b). Part 1, 2 and 3 are European Norms, Part 4 and 5 are Technical Specifications.

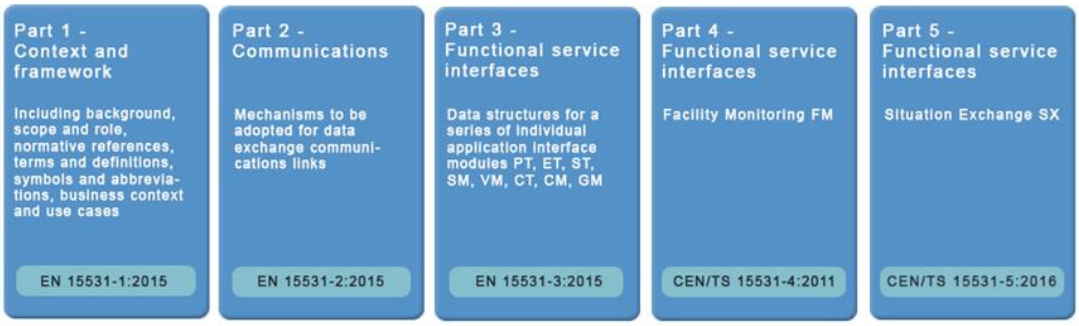

Figure 3.5 SIRI Components (SIRI-CEN, no date).

3.3 Data standards implemented in NAPs

3.3.1 ANALYSIS PER COUNTRY

Table 3.1 presents the responses regarding the implemented data standards in each NAP. DATEX II is implemented in almost all NAPs, while NeTEx is implemented in noticeably less ones. SIRI, on the other hand, is even less used. These results come without surprise when considering the data availability of NAPs. Specifically, as it becomes evident from the figures presented in Section 2, the number of NAPs including at least one MMTIS-related publication are less than the number of NAPs including at least one RTTI-, SRTI-, or SSTP-related publication. Similarly, dynamic MMTIS-related datasets are published to considerably less degree in European NAPs compared to static MMTIS-related datasets. Furthermore, the older standards WMS/WFS and ROSATTE seem to apply in certain countries. This could be attributed to the close relationship between these standards with newer ones (e.g.,

[9] Under voting process based on CEN procedures until the submission of this report.

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the deliverables of ROSATTE project constitute a major input to the work of TN-ITS). Furthermore, there may be a pending transformation process for datasets that are structured based on the previously mentioned standards. In the "Other" category, popular formats like XML or JSON are mentioned, whereas such formats represent non-domain-specific syntaxes, which are/can be also used by domain-specific standards, such as DATEX II. Finally, the use of GTFS and other by-products (e.g., GTFS-RT and GBFS) is reported by a significant number of countries.

Table 3.1 Overview of data standards implemented in European NAPs

Country	DATEX	NeTEx	SIRI	WMS/ WFS	ROSATTE	Other
Austria	X	X	-	-	-	RSS, Geo JSON, XML
Belgium	-	X	-	X	X	-
Bulgaria	X	-	-	-	-	-
Croatia	X	X	-	-	-	X
Cyprus	-	-	-	-	-	GTFS
Czech Republic	X	-	-	-	-	custom xml for road traffic information, CSV, GTFS, KML, JSON
Denmark	X	X	X	X	-	-
Estonia	X	-	-	X	-	-
Finland	X	X	X	X	X	GTFS
France	X	X	X	-	-	GTFS, GTFS-RT, GBFS, JSON, CSV, XML
Germany	X	X	-	-	-	proprietary XML formats – As we provide access to most MDM data sets via our brokering interface, we don't monitor the detailed contents (or data fields) of individual MDM data sets.
Greece	X	-	-	-	-	OSM, Non-standardized formats
Hungary	X	-	-	X	-	X
Ireland	-	X	-	-	-	X
Italy	X	-	-	-	-	XLS
Latvia	-	-	-	-	-	-
Lithuania	-	X	-	-	-	GTFS
Luxembourg	X	X		X		GTFS
Malta	No operational NAP					
Netherlands	X	X	X	-	-	national public transport standard (BISON)
Norway	X	X	X	-	-	NVDB (National Road Data Base) Feature Catalogue, Elveg Data Product Specification (ISO 19131)
Poland	X	-	-	-	-	-
Portugal	X	X	-	-	-	-
Romania	X	-	-	-	-	-
Slovakia	X	-	-	-	-	-
Slovenia	No answer					
Spain	X	-	-	-	X	XML, JSON, SHP, KML, GTFS
Sweden	X	-	-	-	-	No data in the NAP just links
Switzerland	X	-	-	-	-	-
United Kingdom	Under Implementation					

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3.3.2 Analysis per Delegated Regulation

The current section provides an overview of the standards implemented in accordance with each of the Delegated Regulations supplementing the ITS Directive (2010/40/EU). In particular, it presents in an aggregated manner the main findings of the part of the survey targeting this topic, while information about the data standards implemented in each country and in accordance with each Delegated Regulation is available in Annexes II to V.

It is important to note that the information requested by the survey is based on the data elements as mentioned exactly in the Annexes of each of the Delegated Regulations supplementing the ITS Directive (2010/40/EU). Responders were asked to indicate the utilized data standard for each data element but also the utilized location referencing method.

It is also important to mention that provided information encompasses NAPs acting as databases or both metadata repositories and databases (see Chapter 4).

3.3.2.1 Standards implemented for SSTP

Figure 3.6, Figure 3.7, Figure 3.8, and Figure 3.9 present the data standards used for the exchange of static information about safe and secure truck parking places, static information about the safety conditions and equipment of safe and secure truck parking places, contact information of the operators of safe and secure truck parking places, and dynamic information about the availability of safe and secure truck parking places, respectively. DATEX II constitutes the mainly used standard for the exchange of static information. Contact information of the operators of safe and secure truck parking places appears to be exchanged by using other standards beyond DATEX II. However, the low number of received responses for this data element does not allow the drawing of concrete conclusions concerning which is the mainly used standard. The same holds true for the exchange of dynamic information about the availability of safe and secure truck parking places. Nevertheless, in this case, it could not be expected to receive more responses, given the low availability of relevant datasets in European NAPs (see Chapter 2). In this respect, it could be more safely concluded that the exchange of dynamic information about the availability of safe and secure truck parking places is based on other standards and methods apart from DATEX II.

Figure 3.10 presents the utilized methods for encoding point and linear location information. For the former purpose, coordinates are the mostly utilized method (at a percentage equal to 43%). For the latter purpose, the linear along linear elements method is the mostly utilized one (at a percentage equal to 46%).

Country specific information about the standards implemented for SSTP in relation to each data element can be found in Annex II – Implemented data standards for SSTP per country.

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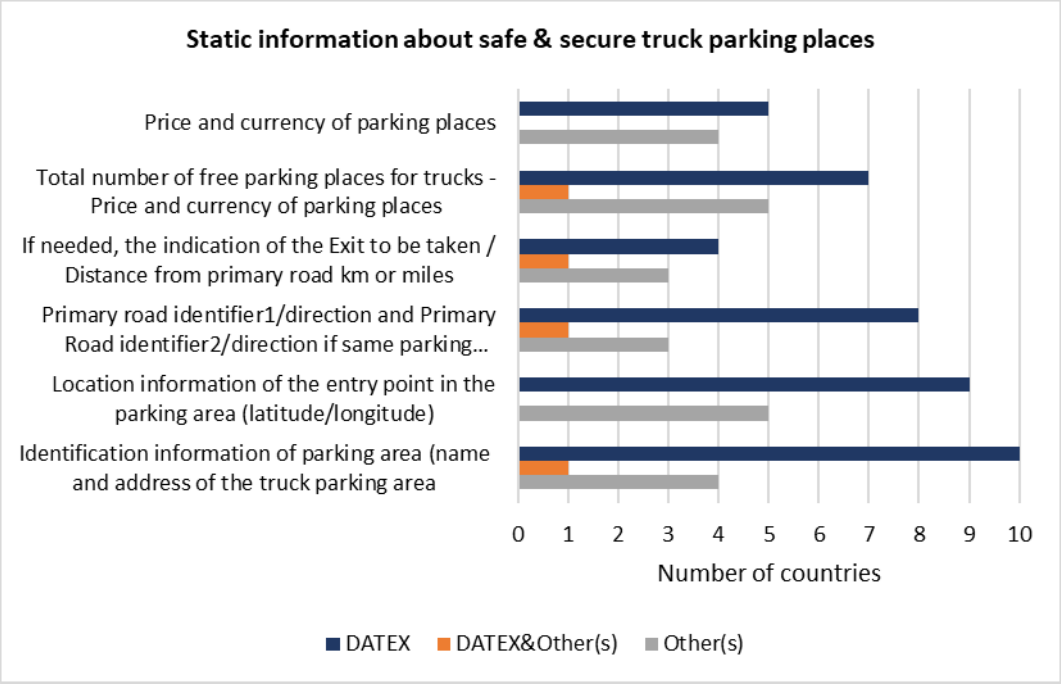

Figure 3.6 Data standards used for the exchange of static information about safe and secure truck parking places.

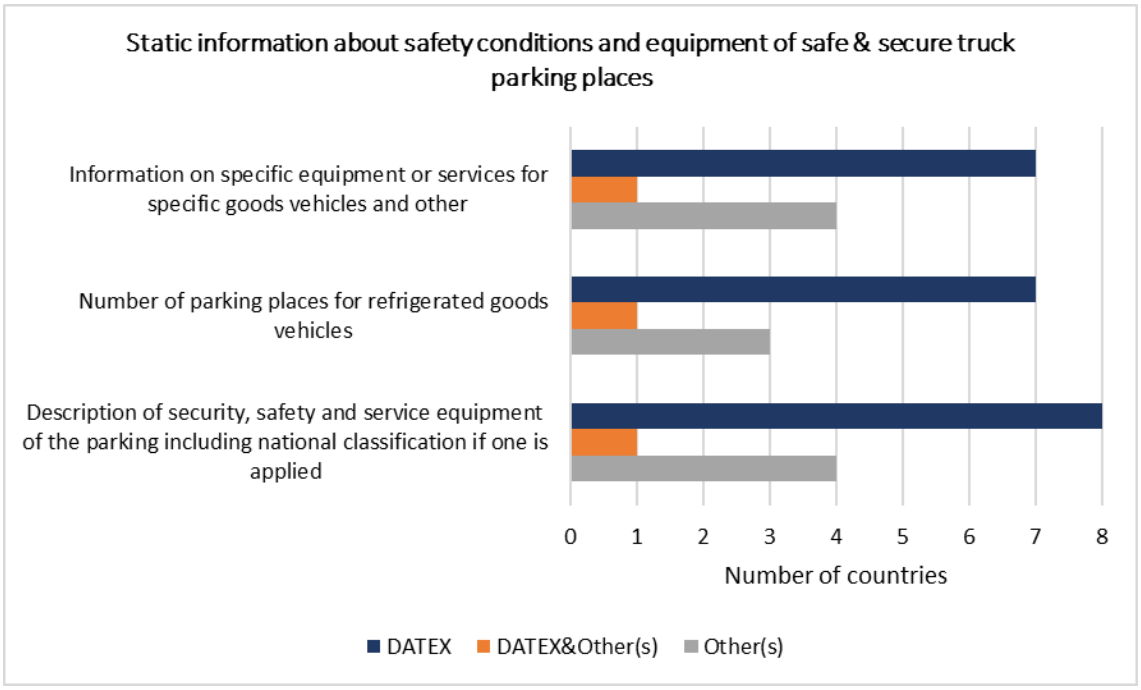

Figure 3.7 Data standards used for the exchange of static information about the safety conditions and equipment of safe and secure truck parking places.

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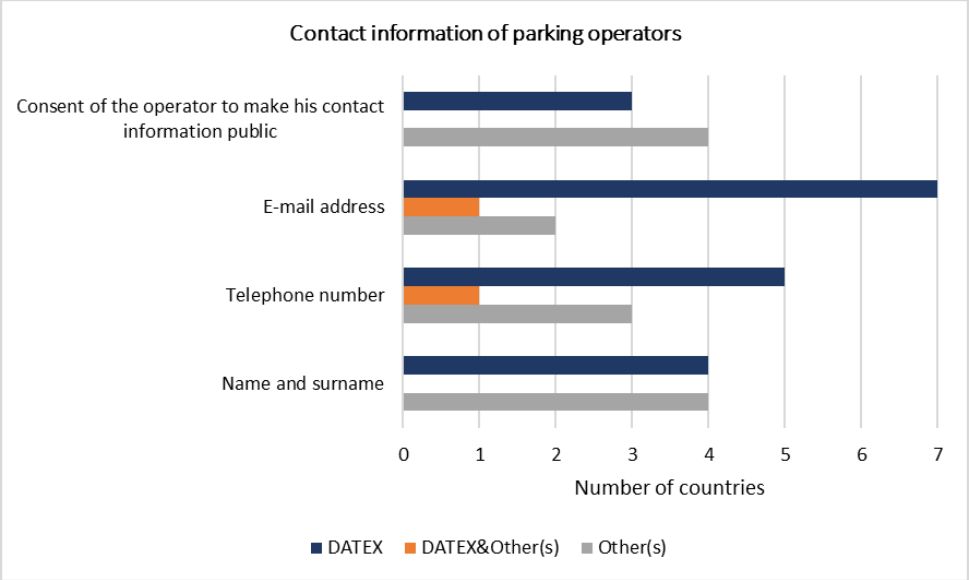

Figure 3.8 Data standards used for the exchange of contact information of the operators of safe and secure truck parking places.

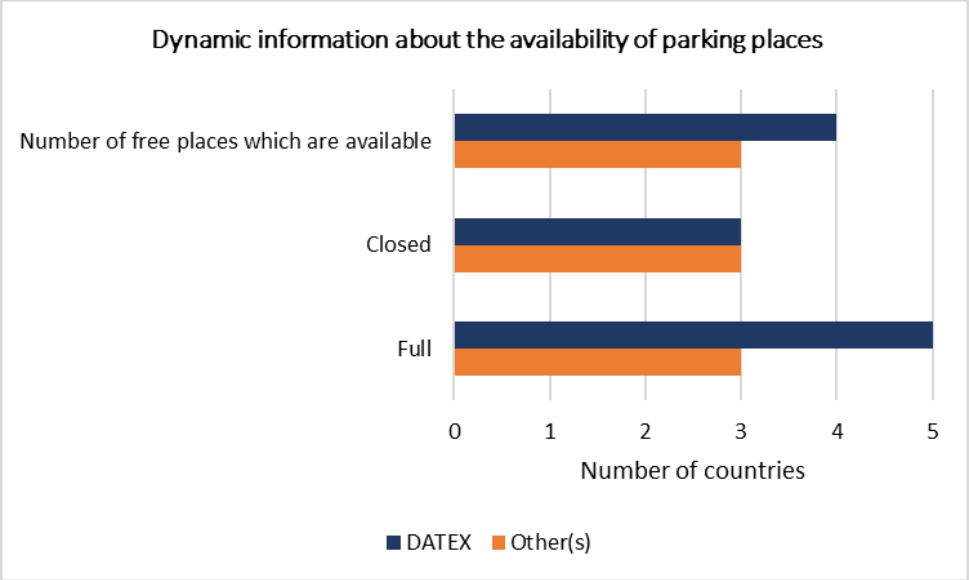

Figure 3.9 Data standards used for the exchange of dynamic information about the availability of safe and secure truck parking places

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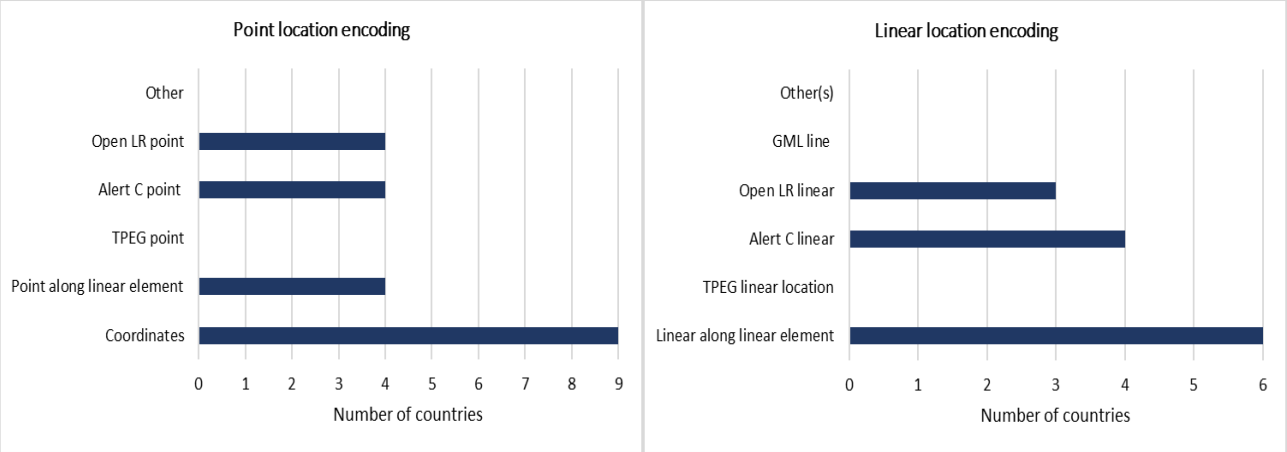

Figure 3.10 Location referencing methods used for the exchange of SSTP-related information

3.3.2.2 *STANDARDS IMPLEMENTED FOR SRTI*

Figure 3.11 presents the data standards used for the exchange of dynamic information about road safety-related events/conditions. As it can be easily observed, almost all countries use DATEX II for this purpose. Examples of other data formats mentioned constitute DDR and XML.

Figure 3.12 presents the utilized methods for encoding point, linear, and area location information. The encoding of point locations is accomplished through various methods with the most widely utilized methods being coordinates, Alert C point, point along linear element, and Open LR point. The encoding of linear locations is also accomplished through various methods with the most widely utilized methods being linear along linear element, Alert C linear, and Open LR linear. Finally, the encoding of area locations is mainly accomplished through the Alert C area method.

Country specific information about the standards implemented for SRTI in relation to each data element can be found in Annex III – Implemented data standards for SRTI per country.

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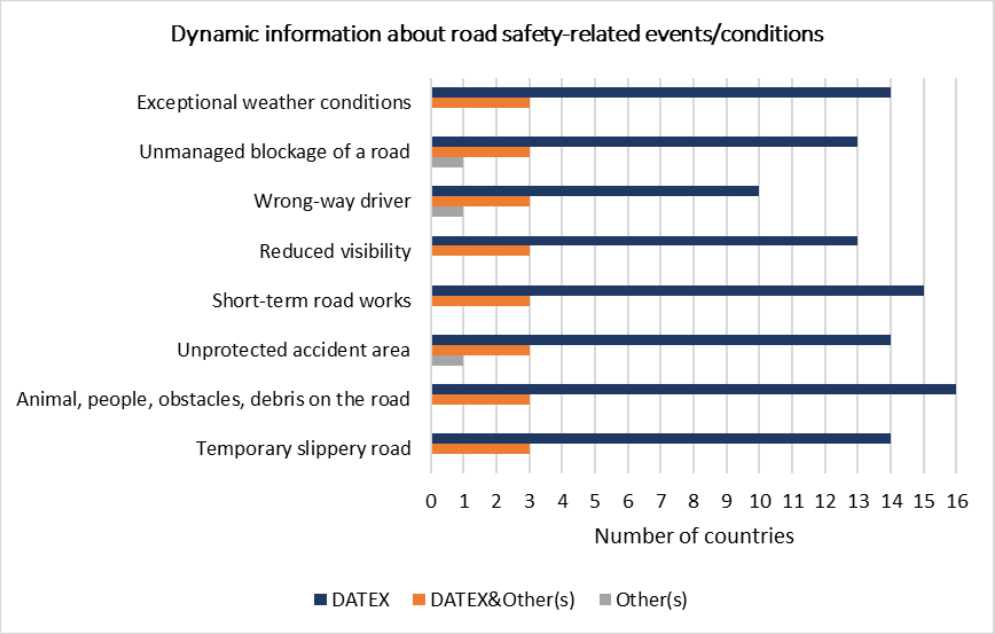

Figure 3.11 Data standards used for the exchange of dynamic information about road safety-related events/conditions

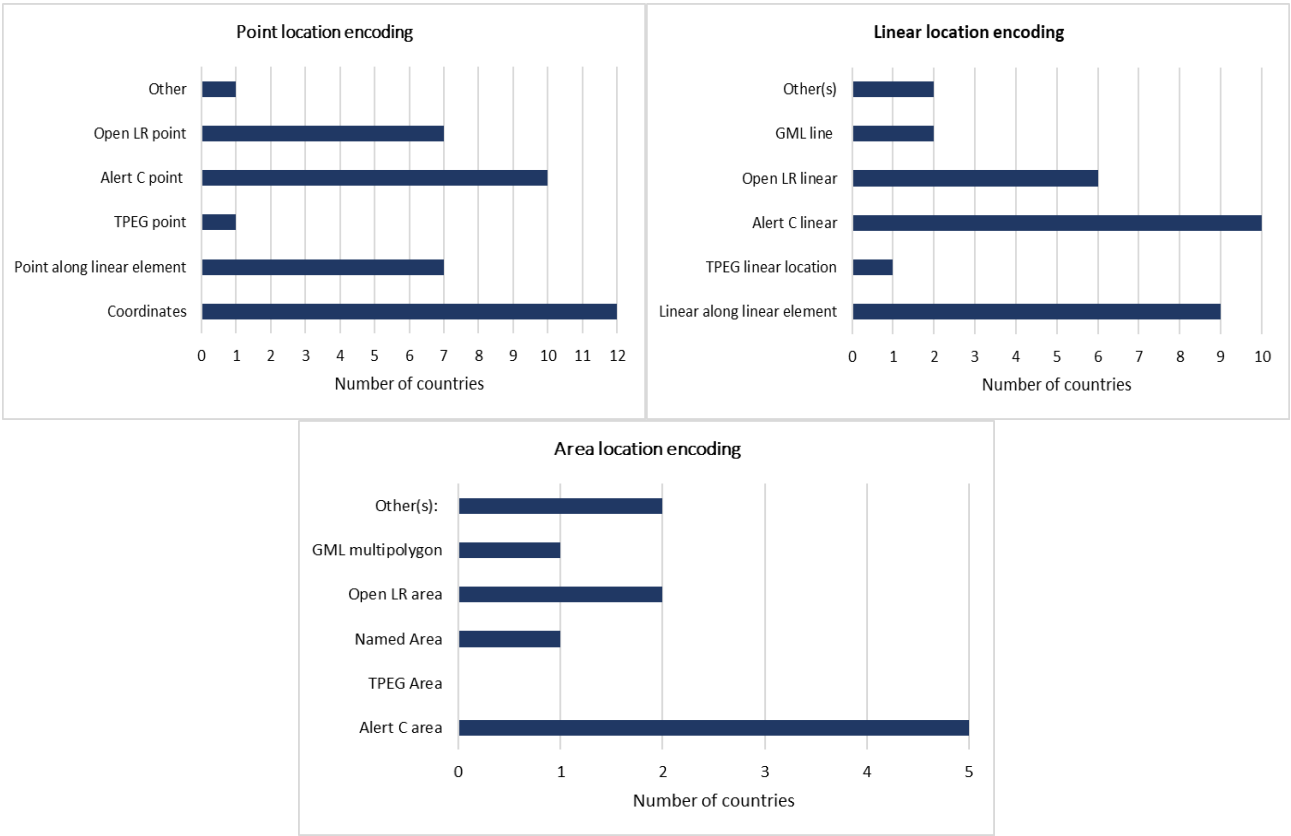

Figure 3.12 Location referencing methods used for the exchange of SRTI-related information

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3.3.2.3 STANDARDS IMPLEMENTED FOR RTTI

Figure 3.13, Figure 3.14, and Figure 3.15, present the data standards used for the exchange of static information about the road network, its usage, and roadway/roadside infrastructure, dynamic road status information, and dynamic road traffic information, respectively. As regards the exchange of static information about the road network, its usage, and roadway/roadside infrastructure, the most widely used standard constitutes DATEX II. In addition, a significant number of countries has mentioned the use of WMS/WFS standard for this purpose, while a less number has mentioned ROSATTE. Examples of other mentioned formats (not necessarily standardized) include GeoJSON, SHP, NVDB, and ALERT-C. As regards the exchange dynamic road status information, DATEX II is dominantly used data standard. Examples of other mentioned formats constitute DDR and XML. As regards the exchange of dynamic road traffic information, the picture is pretty similar to the exchange of dynamic road status information.

Figure 3.16 presents the utilized methods for encoding point, linear, and area location information. The most prominent methods used for encoding point locations are coordinates, Alert C point, point along linear element, and Open LR point. The encoding of linear locations, on the other hand, is mainly based on liner along linear element, Alert C linear, and Open LR linear methods. Finally, the encoding of area locations appears to be mainly accomplished through the Alert C area method. A significant number of countries has indicated the use of the GeoJSON format for this purpose, while some others have mentioned the GML multipolygon and named area method. None of the countries has mentioned the use of Open LR area, and TPEG Area methods.

Country specific information about the standards implemented for RTTI in relation to each data element can be found in Annex IV – Implemented data standards for RTTI per country.

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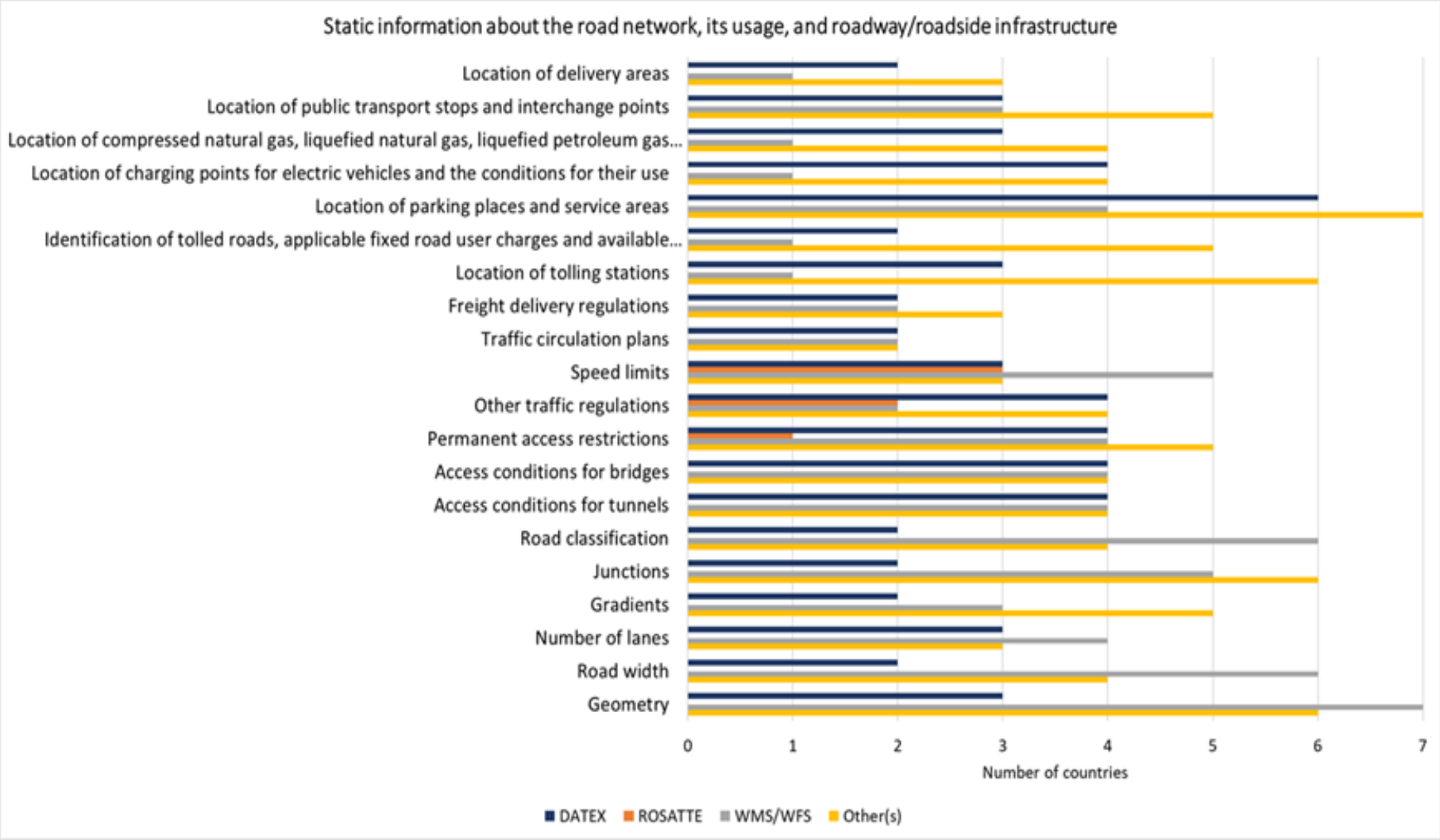

Figure 3.13 Data standards used for the exchange of static information about the road network, its usage, and roadway/roadside infrastructure

This project has received funding from the European Commission's Directorate General for Transport and Mobility under Grant Agreement no. MOVE/B4/SUB/2020-123/SI2.8522

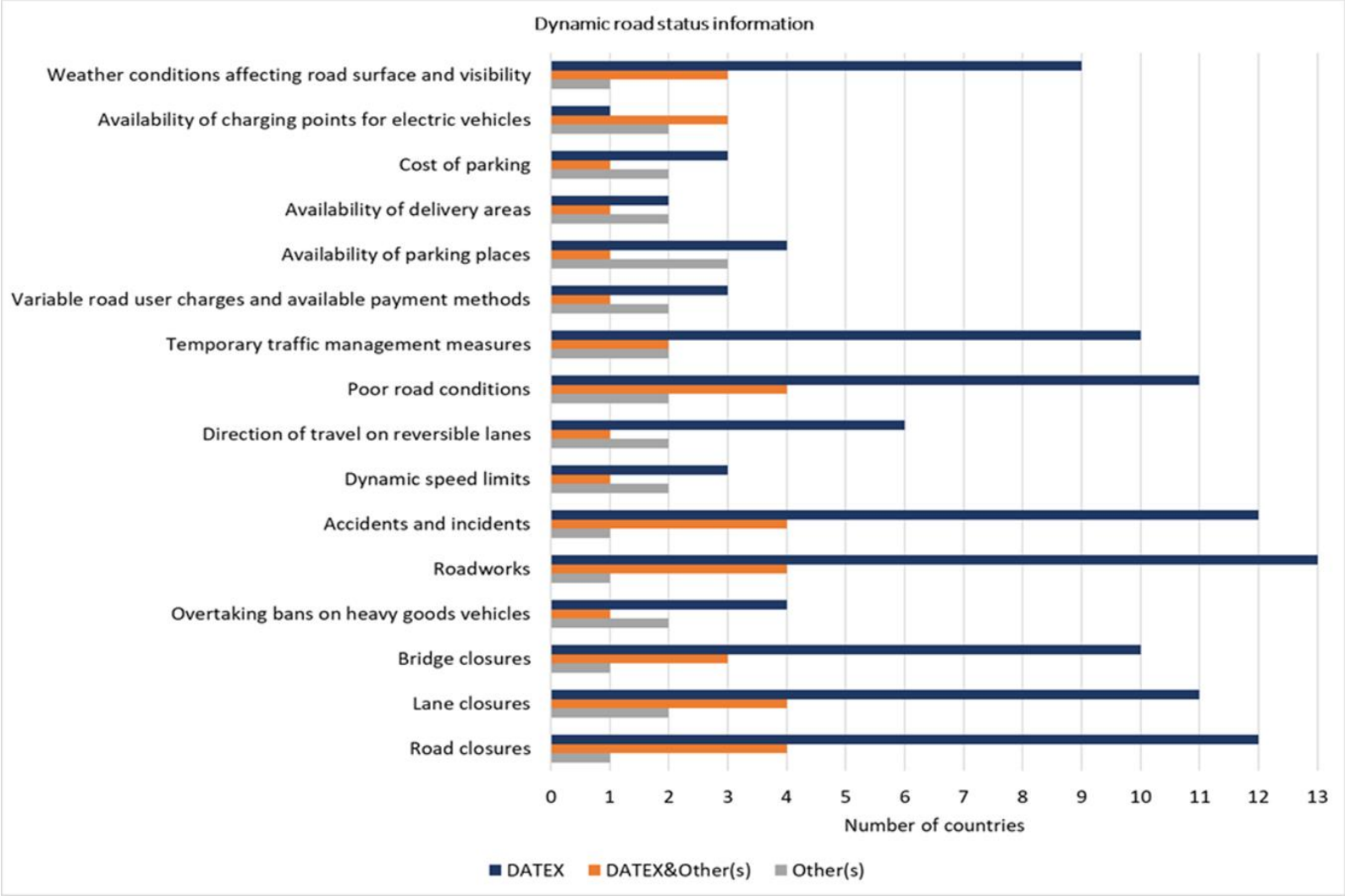

Figure 3.14 Data standards used for the exchange of dynamic road status information

This project has received funding from the European Commission's Directorate General for Transport and Mobility under Grant Agreement no. MOVE/B4/SUB/2020-123/SI2.8522

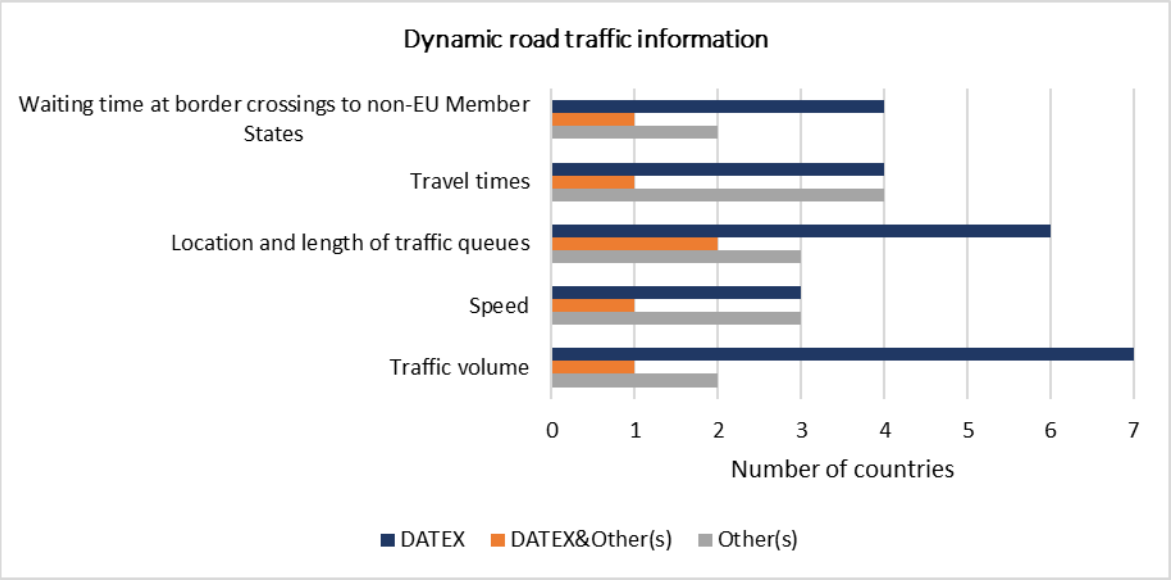

Figure 3.15 Data standards used for the exchange of dynamic road traffic information

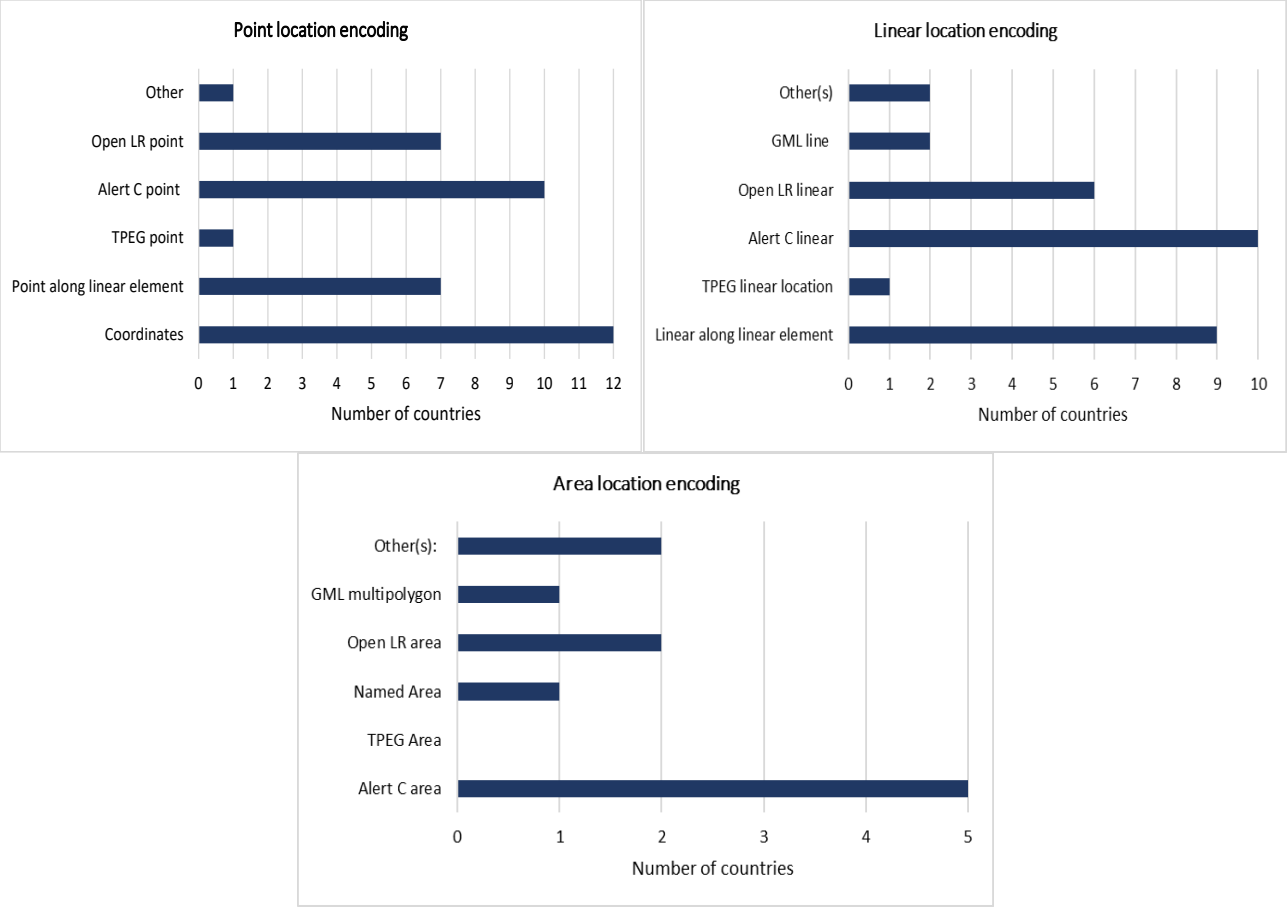

Figure 3.16 Location referencing methods used for the exchange of RTTI-related information

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3.3.2.4 STANDARDS IMPLEMENTED FOR MMTIS

Figure 3.17, Figure 3.18, Figure 3.19, Figure 3.20, Figure 3.21, Figure 3.22 , Figure 3.23, Figure 3.24, and Figure 3.25 present the data standards used for the exchange of static information related to MMTIS. As regards the exchange of static information supporting location search services, the majority of countries has mentioned the use of "other standards" without providing concrete examples. The same observation holds true for the entirety of information exchanged in relation to MMTIS. However, it is worth mentioning that in specific data categories such as the category related to "static information for detailed common standard and special fare queries" the countries that declare "other" in all data elements falling under this category, are always the same. These countries are Estonia, Finland, Greece, Ireland, and Romania. Therefore, the remainder of this section discusses specific data standards that have mentioned by the responders. As regards the same category, these include NeTex, INSPIRE, OSM, GTFS, and JDF. As regards the exchange of static information supporting detailed common standard and special fare querying services, mentioned specific data standards include NeTex and JDF. As regards the exchange of static information for traveller services, mentioned specific data standards include NeTex and GBFS. The first is associated with all relevant data types under this category, while the latter is associated with the provision of information about bike sharing services. As regards the exchange of static information for trip plans, mentioned specific data standards (and formats) include NeTex, GTFS, OSM, and PDF. As regards the exchange of auxiliary static information for trip plans and availability check, the only specific data standard mentioned is NeTex. As regards the exchange of static information for trip plan computation (scheduled modes of transport and road transport), mentioned specific data standards include NeTex, GTFS, OSM, and JDF. Finally, as regards the exchange of dynamic MMTIS-related information, mentioned specific data standards include DATEX II, SIRI, and GTFS-RT.

Figure 3.26 presents the utilized methods for encoding point, linear, and area location information. The most prominent methods used for encoding point locations are, in ascending order, coordinates and point along linear elements. Other mentioned methods revolve around S-JTSK coordinate system and GeoJSON format. On the other hand, the encoding of liner locations is mainly accomplished through the linear along linear element method, but also through the GML line method and the GeoJSON format as well. Finally, the encoding of area locations is accomplished through varying methods, including GML polygons, Alert C area, Named Area, and GeoJSON format.

Country specific information about the standards implemented for MMTIS in relation to each data element can be found in Annex V – Implemented data standards for MMTIS per country.

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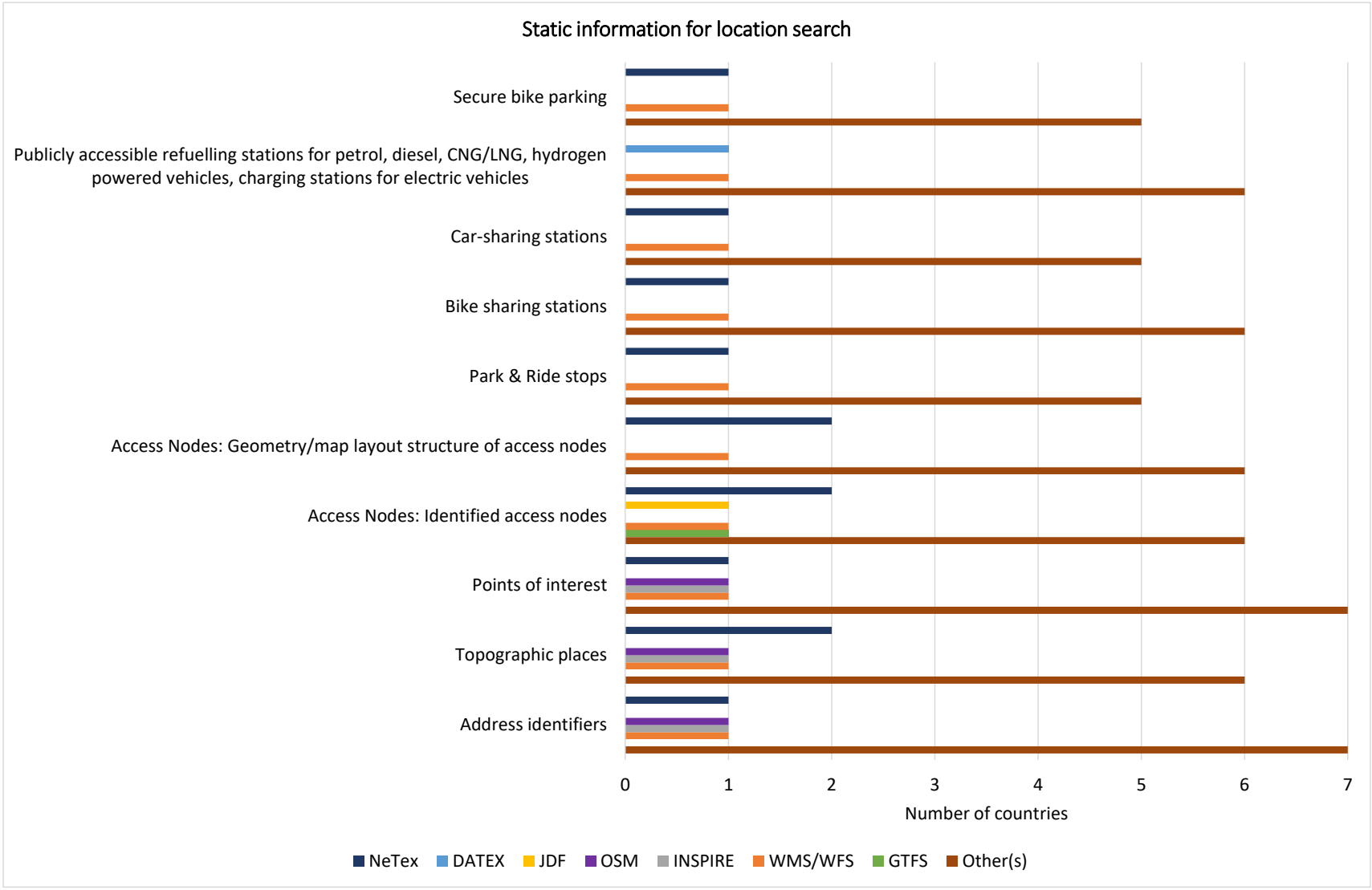

Figure 3.17 Data standards used for the exchange of static information for "location search"

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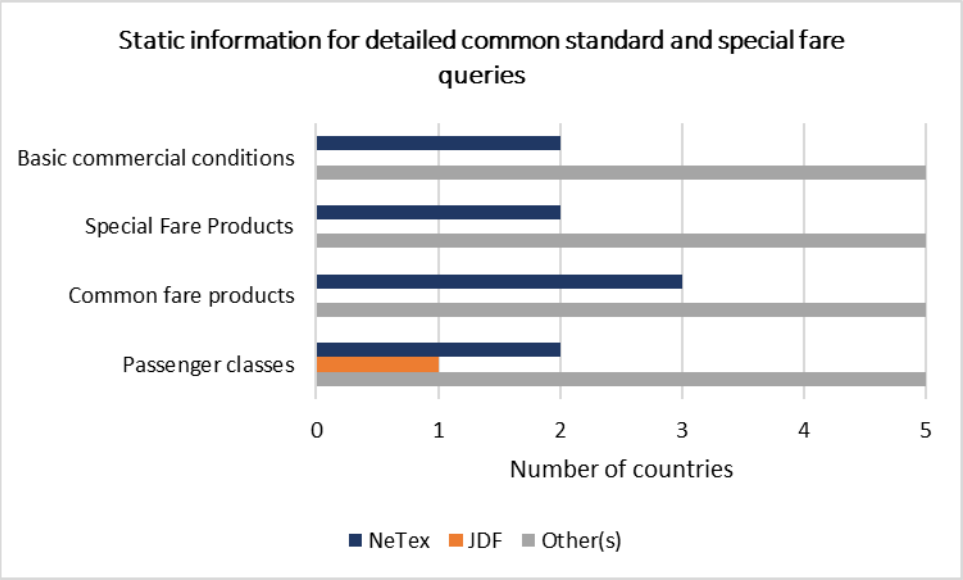

Figure 3.18 Data standards used for the exchange of static information for "detailed common standard and special fare queries"

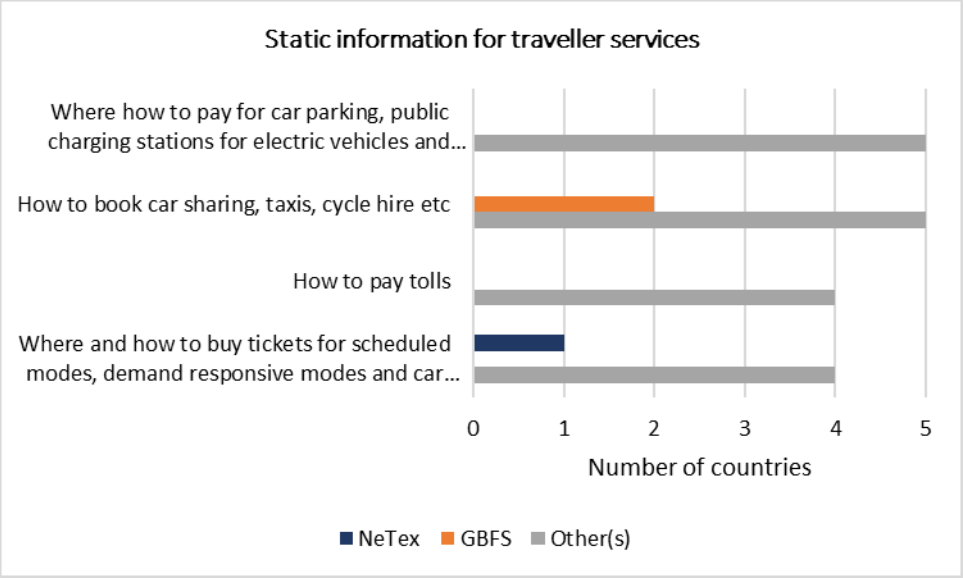

Figure 3.19 Data standards used for the exchange of static information for "traveller services"

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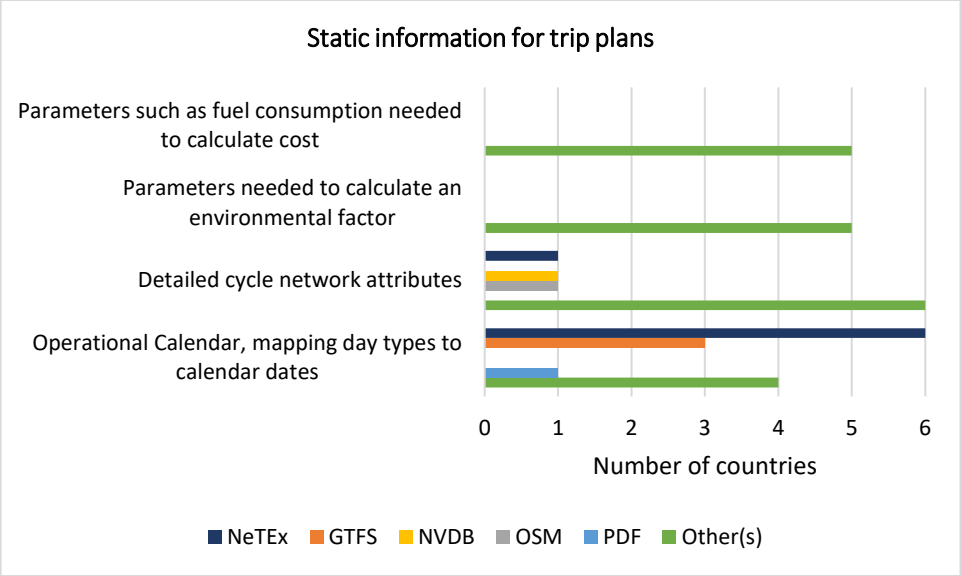

Figure 3.20 Data standards used for the exchange of static information for "trip plans"

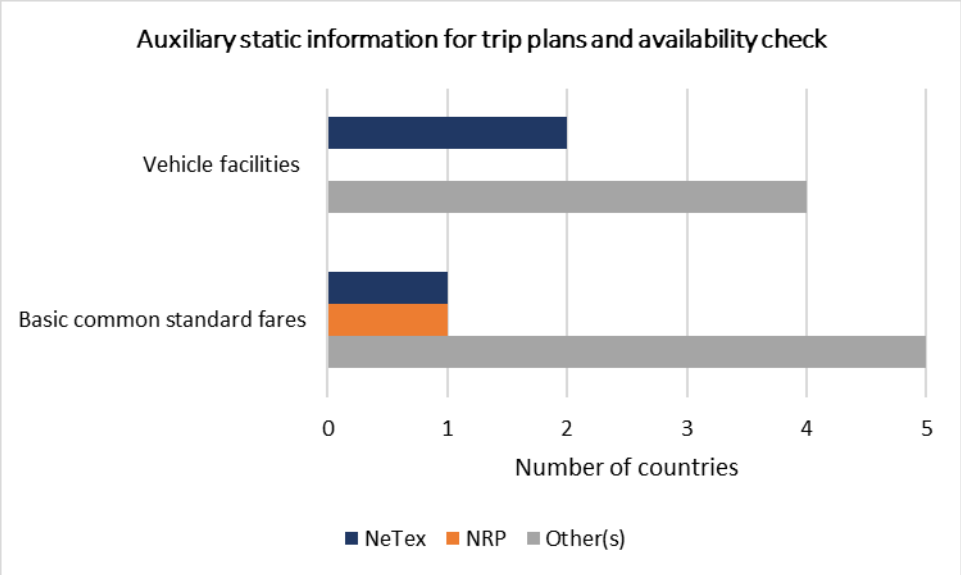

Figure 3.21 Data standards used for the exchange of auxiliary static information for "trip plans and availability check"

This project has received funding from the European Commission's Directorate General for Transport and Mobility under Grant Agreement no. MOVE/B4/SUB/2020-123/SI2.8522

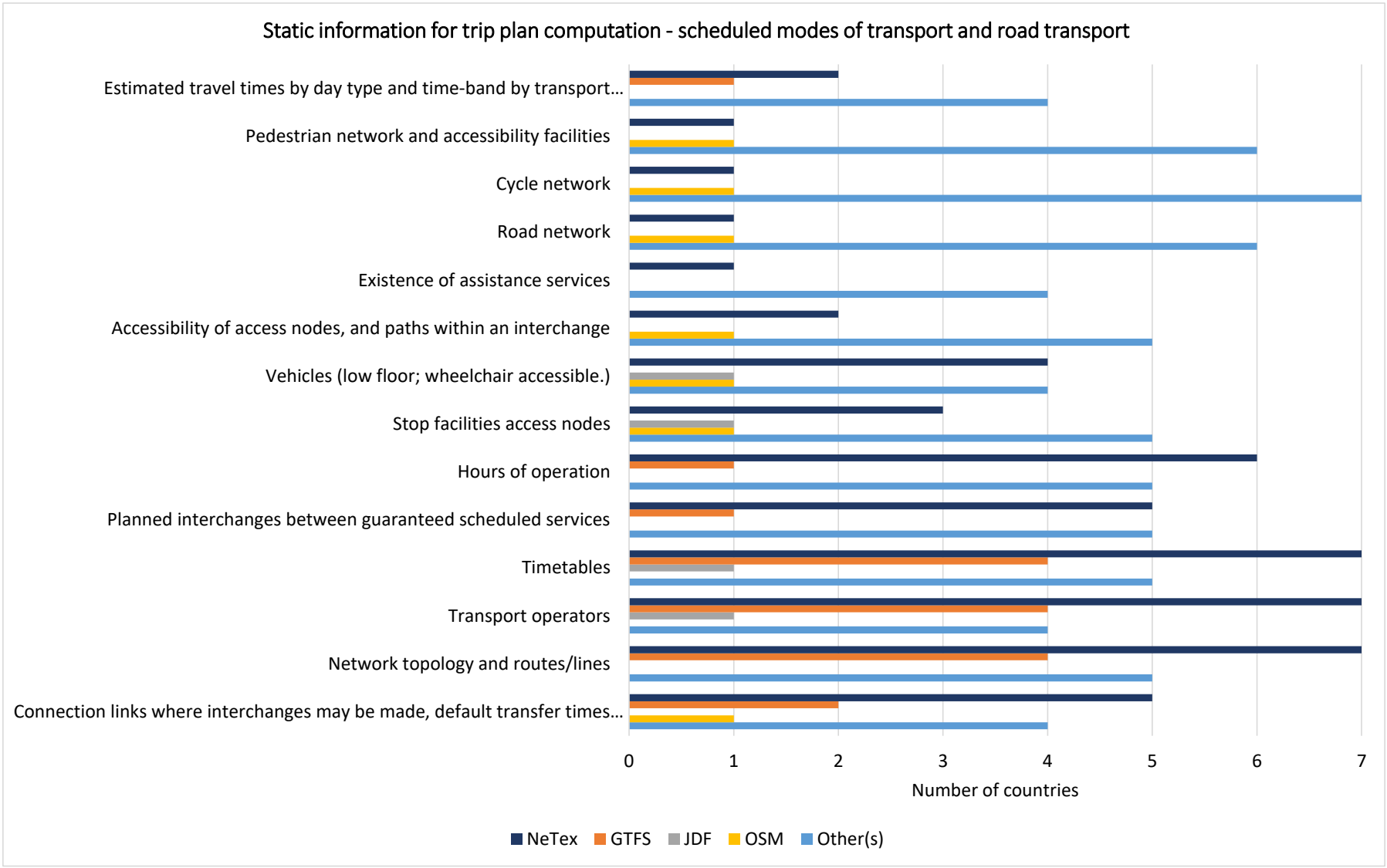

Figure 3.22 Data standards for the exchange of static information for "trip plan computation – scheduled modes of transport and road transport

This project has received funding from the European Commission's Directorate General for Transport and Mobility under Grant Agreement no. MOVE/B4/SUB/2020-123/SI2.8522

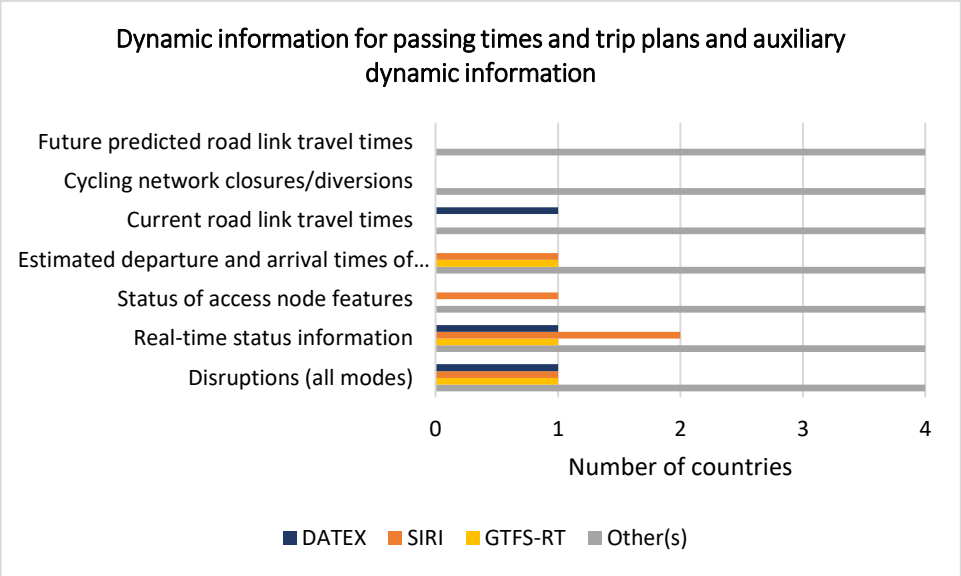

Figure 3.23 Data standards for the exchange of dynamic information for "passing times and trip plans" and dynamic auxiliary information

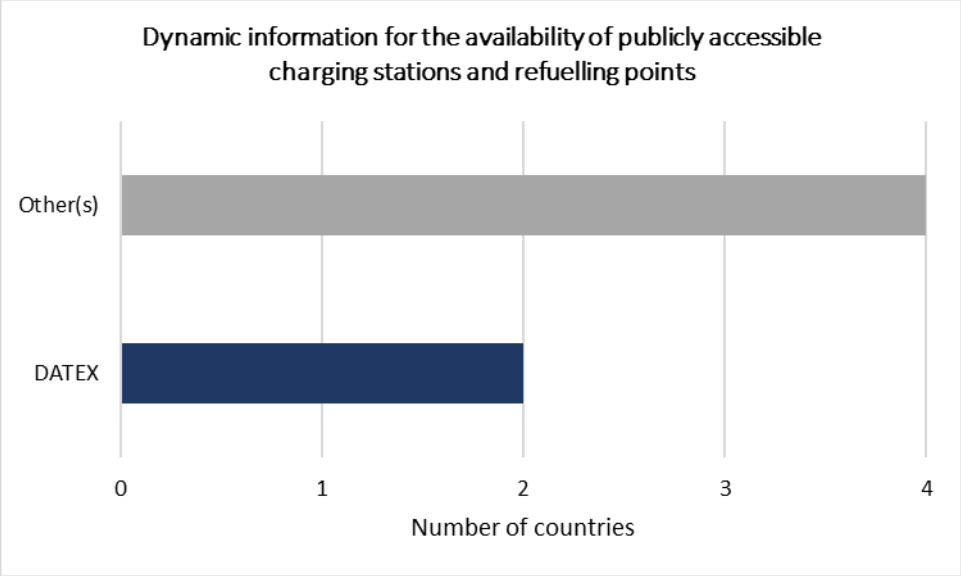

Figure 3.24 Data standards for the exchange of dynamic information for the "availability of publicly accessible charging stations and refuelling points"

This project has received funding from the European Commission's Directorate General for Transport and Mobility under Grant Agreement no. MOVE/B4/SUB/2020-123/SI2.8522

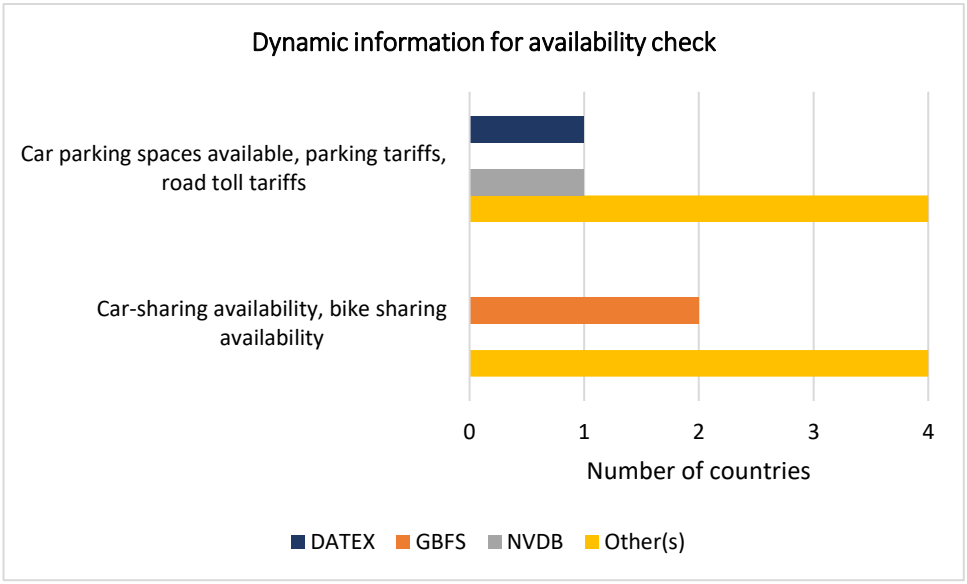

Figure 3.25 standards for the exchange of dynamic information for availability check

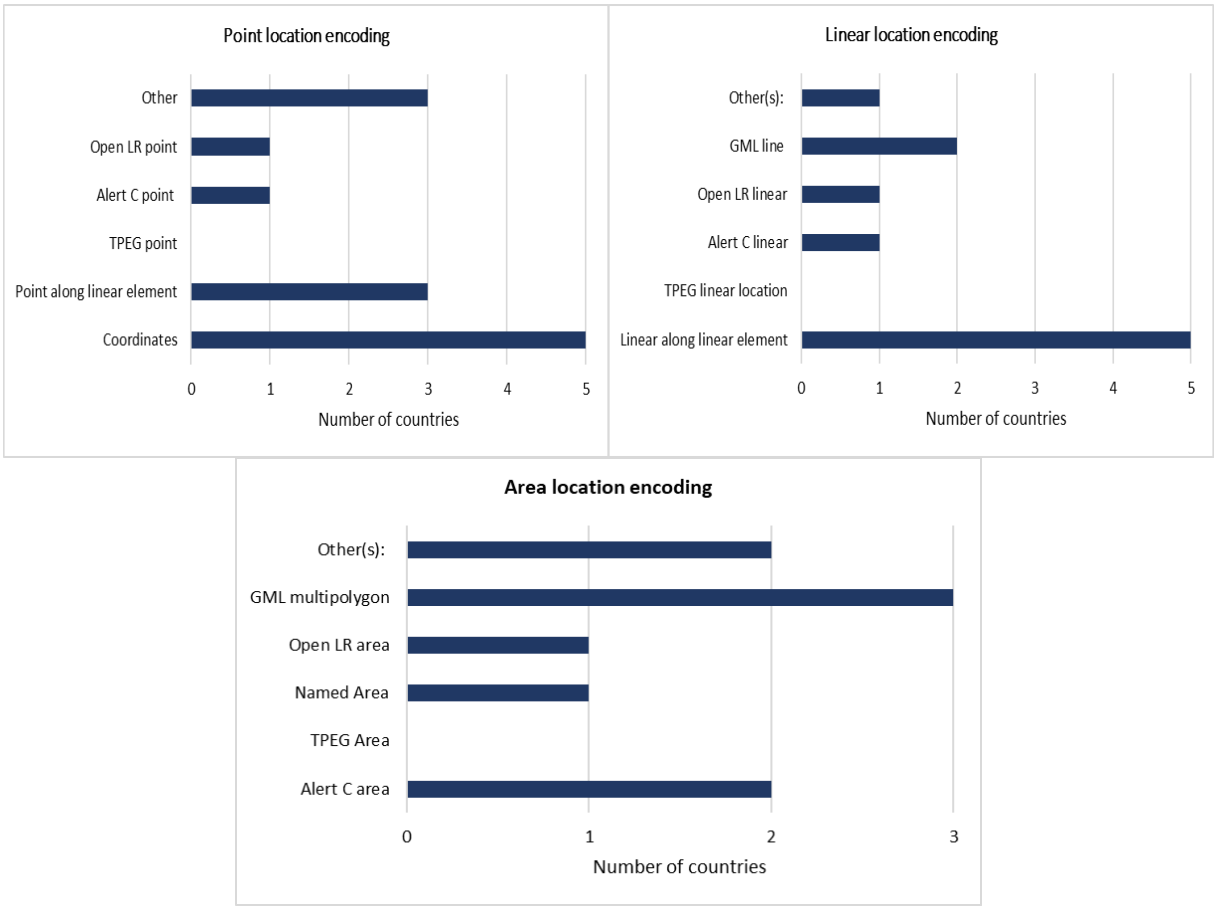

Figure 3.26 Location referencing methods used for the exchange of MMTIS-related information

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3.3.3 DATEX II VERSIONS AND PROFILES

As it can be observed in the analysis of the acquired feedback that is presented in the previous sections of the current chapter, DATEX II is the most widely used data standard in European NAPs. Moreover, as it is mentioned in Section 3.1, data sources in DATEX II can be "profiled" or extend the general DATEX II model. DATEX II also exists in **several versions:** 1.x (historic implementations of first DATEX II nodes), 2.x (most of the current implementations) and 3.x (current standard, implemented by just a few provideps). Providers should provide their data in more DATEX II versions (since major versions are not backwards compatible). A number of providers also created their own extensions to the DATEX II model to fit their specific needs (i.e., location, quality framework, road belt description). Therefore, the survey prepared in the context of the current report asked countries to provide information about the utilized DATEX II versions and profiles. The acquired feedback is presented in Table 3.2.

Table 3.2 Overview of DATEX II used versions and profiles for each country

Country	DATEX II version used	Information about custom/standard profiles used
Austria	2.3, 3.3	The DATEX II datasets have been forged as elementary profiles out of the complete standard. Whenever a recommended reference profile is published, the corresponding Austrian Elementary Profile is edited so as to encompass the published profile 1:1 with some local data fields added as B-level extensions. The aim is to be compliant to the most current DATEX Version, in any case at least 3.0. Currently 2.3 is supported for every dataset for legacy reasons. Austrian Elementary Profile UNPLANNED EVENTS, which encompasses the RECOMMENDED REFERENCE PROFILE "SRTI". Austrian Elementary Profile TRAFFIC TRAVEL TIMES, which will encompass the RECOMMENDED REFERENCE PROFILE "RTTI". Austrian Elementary Profile REST AREAS, which will encompass the RECOMMENDED REFERENCE PROFILE "SSPA". Austrian Elementary Profile TRAFFIC SIGNS, which will encompass the RECOMMENDED REFERENCE PROFILE "TR". Austrian Elementary Profile PLANNED EVENTS, which includes Roadworks. Austrian Elementary Profile TRAFFIC DATA, which holds data from traffic counters. Austrian Elementary Profile TOLLING, which holds the location of the tolling stations
Belgium	-	-
Bulgaria	2	Not available
Croatia	2.3	We are using our own DATEX II profile, based on our national DATEX II
Cyprus	-	-
Czech Republic	2.3, 3.3	Sources documented here: https://registr.dopravniinfo.cz/en/sources/. All DATEX II sources have custom profiles, reducing the amount of information of the generic DATEX II model = we are not using the generic model. All profiles having location description (static, dynamic) are extended by specific Czech location description, also using S-JTSK (EPSG:5514) coordinate system. The profile for sharing FCD data is extended to provide more information about confidence, number of vehicles and level of traffic on monitored segments.
Denmark	2.3, 2.2	I don't think we have or use a custom/standard profile. We are using extensions and we will do so until 1. Jan. 2023.
Estonia	2.0	-
Finland	2.2	-
France	2.3	exchange only in Datex II v 2.3
Germany	3.0, 2.3, 2.2, 2.1, 2.0	DATEX Profiles (or schemas) can be defined by the data provider. He can select a standard schema or upload an own schema file. We are providing some standard DATEX II profiles for some of the data categories on the MDM website, see:

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Country	DATEX II version used	Information about custom/standard profiles used
		https://www.mdm-portal.de/downloads/. These are mandated by the Ministry when road authorities act as data providers, or by other regulations.
Greece	2.3	The Greek NAP includes DATEXII publications related to road weather data, rwis locations, vca traffic volumes, vca locations, vms messages, and vms locations. These publications make use of custom profiles that are based on datexII schema 2_0.
Hungary	2.3, 3.3	No filters available for datasets
Ireland	-	-
Italy	2.0	-
Latvia	2.2 (Will be upgraded to newest Datex II 3.1. version)	-
Lithuania	2.0	Dynamic traffic data (e.g., traffic counters, road weather stations, traffic restrictions) are accumulated in the Traffic Information System (hereafter - TIS) DB in DATEX II v.2.x format. After modernisation of the TIS data sets in DATEX II 2.0 format will be transferred in to DATEX II v.3.x (latest version). Data sets in DATEX II format are provided to the data consumers only on contractual basis with LRA (National Body). Currently through the NAP dynamic traffic data available only in GTFS format.
Luxembourg	2.0	-
Malta	Not operational NAP	
Netherlands	2.3	Dutch profile 2015
Norway	2.3, 3.1	We are covering SRTI and partly RTTI profiles covering: • Forecast and Realtime Event Information • Traffic Condition and Travel Time Information • Speed Limit Information • Road Weather Information • Variable Speed Limits • Incident Warning and Management
Poland	2.3	-
Portugal	3.0	No formal profile has been defined. Only relevant elements and attributes – as defined when the NAP was implemented – are provided.
Romania	2.3	-
Slovakia	-	-
Slovenia	3.2 (for energy infrastructure) and 2.3	We currently use three profiles that are customized. a) DATEXII Events profile, b) DATEXII Geodevices profile, c) DATEXII Truck Parking profile
Spain	3.2, 2.2, 1.0	-
Sweden	2.3	-
Switzerland	2.3	-
United Kingdom	-	-

The evidence included in Table 3.2 show that the oldest used version of DATEX II is 2.0, which is released in June 2011. But there are also datasets complying to the latest DATEX II Version 3.2. So, the range of DATEX II variants is very broad. However, many NAP operators and data providers indicate that they have plans to update the DATEX II versions. In Germany, where the NAP offers special broker interfaces, these interfaces have been recently upgraded to support DATEX II version 3.2. However, as of today, only few data providers use this new feature in the German NAP.

Analysing the responses regarding DATEX II profiles, there is only little use of harmonized profiles across Europe. Austria reported they use national profiles which are kept compliant with the European Reference Profiles. Most of the other countries are using some form of profile/extension, while only two countries that provided explanatory answers are using generic DATEX II model without profiling.

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Considering the use of different DATEX II versions and the number of national extensions and profiles in place, it is clear that European traveller would benefit if these were harmonized among the data providers.

Regarding DATEX II, countries were also asked about issues they faced in using the standard. Croatia reported they are experiencing some issues with version 2.3 (shortcomings). Therefore, they plan to implement version 3.x during this year.

Denmark mentioned that the standard allows too many exceptions, and this creates problems for international providers.

Germany reported that the NAP operator does not directly monitor the satisfaction with the DATEX II profiles. However, from the perspective of a data provider, they say "we often hear about problems of ambiguity with some of the data elements proposed by a DATEX profile. As NAP operators, we would encourage further EU-wide harmonisation of DATEX II profiles for interoperability reasons, as well as user support to make DATEX II more productive and efficient."

Hungary raised an interesting problem: they cannot implement all DATEX II versions in their NAP because in such a case a single interface should exist supporting the mapping/harmonization of different versions.

Norway indicated to the need:

- To make the model more consistent as regards mandatory fields, enabling in this manner the standardization of RSPs
- To declare a minimum set of profiles required as part of making NAP data standardised
- To modernize data exchange mechanisms including broker-based architectures

Czechia remarked that the problem revolving profiles vs. non-profiles lies mostly in the use of location reference. Different data providers use different location referencing methods, sometimes with non-standard self-imposed limitations (e.g., using only linear location referencing). It is also remarked that reference profiles unfortunately do not mention a preferred location referencing method. Therefore, this is also an important point to harmonize within the NAPCORE project.

Finally, Slovenia pointed out that several problems existing in version 2.3 are solved with version 3.x, especially with regard to location referencing. For this reason, this version has been adopted in all relevant applications.

3.3.4 NATIONAL NETEX PROFILE STATUS

Another part of the survey executed in the context of the current report seeks to acquire information about the status of the implementation of national NeTEx profiles. For a better understanding of this status, we labelled the answers to the question "If NeTEx/SIRI is used: Do you have a NeTEx national profile?" as follows:

A1 = Yes, it is specified and already in use

A2 = Yes, it is specified but not yet in operation

A3 = No, but we are in the development process

A4 = No, we are about to use the EU profiles

A5 = No, we have not yet any plan or strategy decided

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A6 = Other levels of implementation

Not Applicable

Figure 3.27 presents the acquired feedback following the above classification. As it can be observed, the countries that mentioned that a national NeTEx profile is specified and is simultaneously in use are Norway, Sweden, Netherlands, Germany, Austria, Lithuania, France and Ireland. Finland, Portugal and Slovenia on the other hand, mentioned that a national profile is specified but it has not yet been used. Finally, Croatia, Italy, and Belgium stated that a national profile is under development. This piece of information was impossible to collect under desk research for Luxemburg, for this reason, it appears as "unknown".

Figure 3.28 presents the frequency of the labelled answers. As it is shown the majority of countries has mentioned that the availability of a national NeTEx profile is not applicable. This is mainly attributed to the limited adoption of NeTEx for the exchange of MMTIS-related data (see Section 3.3.2), but potentially also to the limited availability of MMTIS-related data (compared to SSTP-, SRTI, and RTTI-related data). On the other hand, and as mentioned above, 8 are the countries that have already in use a national NeTEx profile, while 3 countries have specified a national NeTEx profile that has not yet been used.

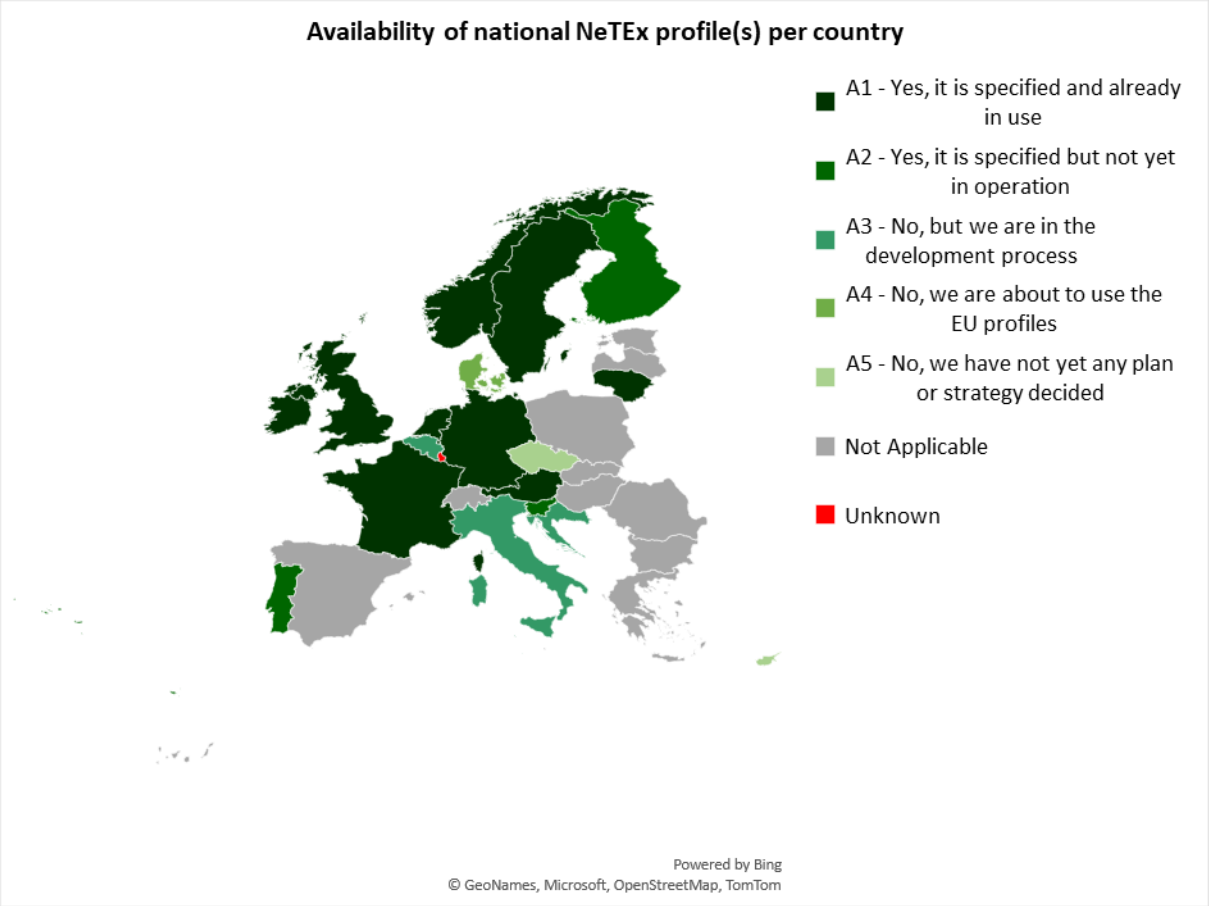

Figure 3.27 Availability of a national NeTEx profile per country.

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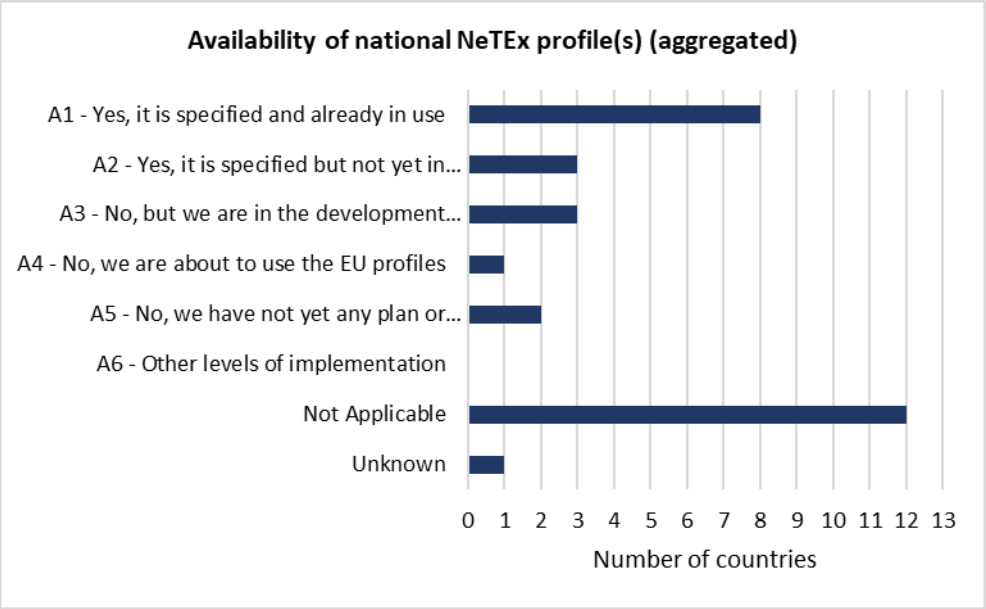

Figure 3.28 Overview of national NeTEx profile availability

Another question of the survey was devoted to the understanding of the extent to which currently existing national NeTEx profiles are based on the European Passenger Information Profile (EPIP). Ideally, all the NeTEx profile of all Member States should comply to the data structure and format suggested by EPIP, which is described in SIST-TS CEN/TS 16614-4:2020. EPIP has been initially developed for the exchange of public transport data in all EU countries and it represents a subset of the full NeTEx profile. For that reason, we have included the following two questions into the survey:

- "Is your NeTEx national profile based on EU minimum profile (e.g., European Passenger Information Profile (EPIP))?"
- "Is your NeTEX profile compatible with EPIP (European Passenger Information Profile)?"

The possible answers related to the first question were "Yes", "No" and "Other", while in the second question the possible answers were "Yes", "No, but we would like to know if we need to update it and ask for help", "No, no updates planned to make it compatible" and "Other".

Table 3.3 presents the acquired feedback considering the aforementioned questions. As it can be observed, a considerable number of NeTEx profiles are based on EPIP. Based on the answer received from Norway, we can imply that the Nordic profile is heavily based on the French and, thus, on EPIP to a considerable extent (but not fully). Some other countries declared that their national profile is either an extension of EPIP or based on the Nordic profile (e.g., Sweden). With respect to compatibility concerns, the majority of NeTEx profiles are compatible with EPIP. This is attributed to the fact that a considerable number of NeTEx profiles are based either on EPIP or the Nordic profile, which is compliant with EPIP. Cyprus stated out that they would like to know if there is a general need to update the NeTEx profile and make it compatible with EPIP, while Netherlands mentioned that although their national NeTEx profile is not directly compatible with EPIP, their data can be transitively converted to an EPIP compliant format.

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Table 3.3 Correlation of NeTEx national profile(s) availability with EPIP compatibility

Country	NeTEx national profile based on EPIP	NeTEx profile compatible with EPIP
Austria	Yes	Yes
Belgium	Yes	Yes
Bulgaria	-	-
Croatia	Yes	Yes
Cyprus	-	No, but we would like to know if we need to update it and ask for help
Czech Republic	-	-
Denmark	Yes	Yes
Estonia	-	-
Finland	Yes	Yes
France	Yes	Yes
Germany	Other	Other
Greece	-	-
Hungary	-	-
Ireland	-	-
Italy	Other Italian profile (it's an extension of the European profile)	Yes
Latvia	-	-
Lithuania	Yes	Yes
Luxemburg	Yes	Yes
Malta	Not operational NAP	
Netherlands	No, no updates planned to make it compatible	Other (our data can be transitively converted to EPIP)
Norway	Other (Nordic profile is based on the French, EU profile is based on the Nordic)	Yes
Poland	-	-
Portugal	-	-
Romania	-	-
Slovakia	Other (Not using NeTEx/ SIRI)	Other (Not using NeTEx/ SIRI)
Slovenia	Yes	Yes
Spain	-	-
Sweden	Other (we have a Nordic profile in cooperation with e.g., Norway)	Yes
Switzerland	-	-
United Kingdom	-	-

3.3.5 NATIONAL SIRI PROFILE STATUS

Beyond the questions concerning national NeTEx profiles, the executed survey also sought to acquire information about the status of the implementation of national SIRI profiles. Therefore, the following question has been asked to the responders: "If NeTEx/SIRI is used: Do you have a SIRI national profile?". The answers to this question were labelled as follows:

A1 = Yes, it is specified and already in use

A2 = Yes, it is specified but not yet in operation

A3 = No, but we are in the development process

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A4 = No, we are about to use the EU profiles

A5 = No, we have not yet any plan or strategy decided

A6 = Other levels of implementation

Not Applicable

Figure 3.29 shows the availability of national SIRI profile(s) per country. As it appears, the only country that has specified and makes use of a national SIRI profile is Norway. Sweden, Finland, and France have also specified a national SIRI profile, but it is not yet been operational/used. Netherlands and Croatia are in the process of developing a national SIRI profile.

Figure 3.30 presents the frequency of the labelled answers. As it can be observed the majority of countries has mentioned that the availability of a national SIRI profile is not applicable. This is probably attributed to the limited use of SIRI (see Section 3.3.2) as well as to the limited availability of data for the provision of dynamic MMTIS-related information services (see Chapter 3). The number of countries that have already adopted SIRI are 2, while other 3 country have specified a SIRI, but it is not yet in operation.

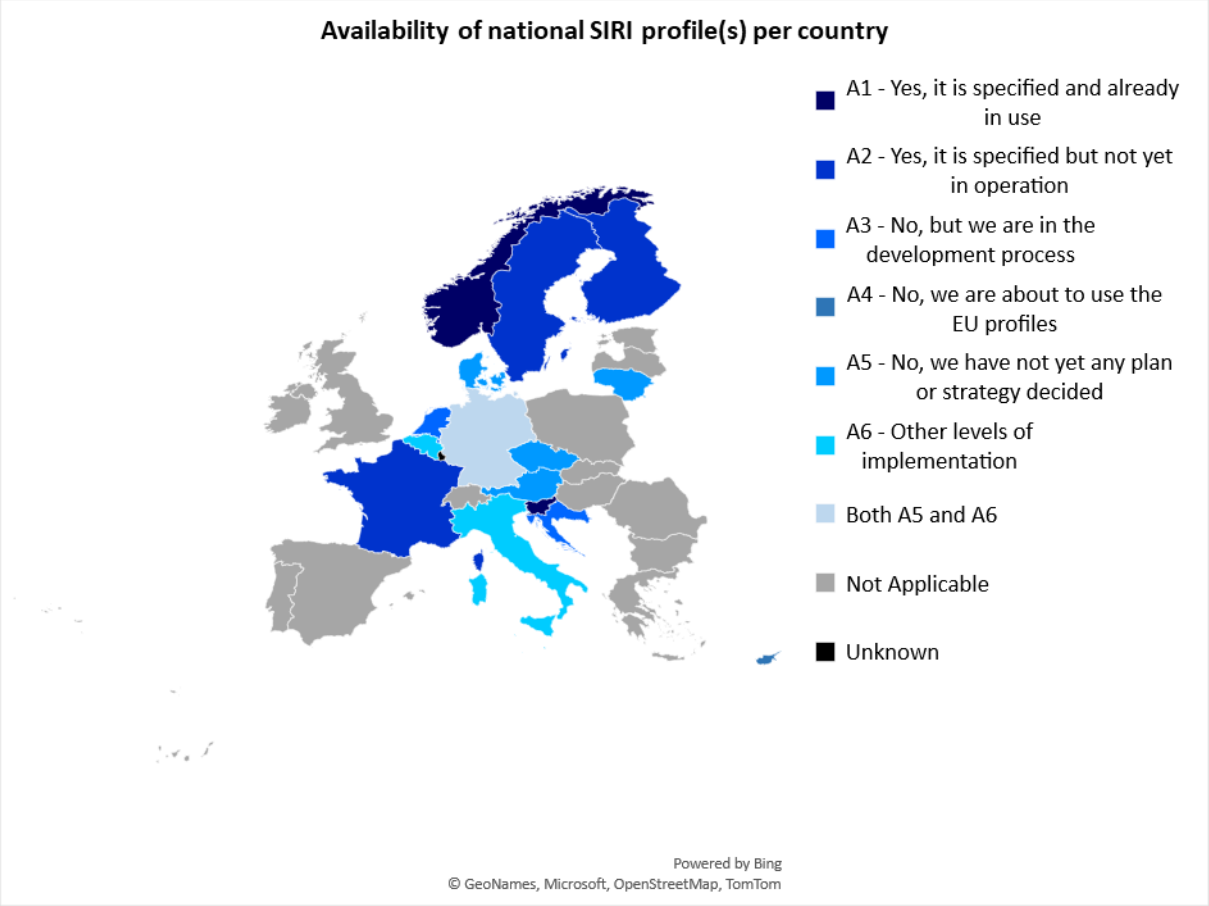

Figure 3.29 Availability of national SIRI profile per country.

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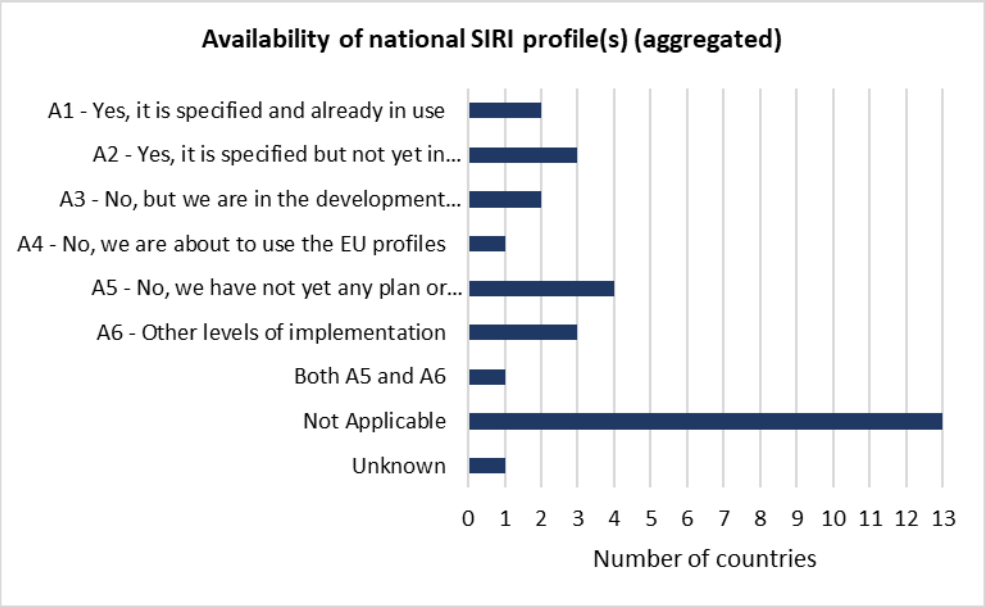

Figure 3.30 Overview of national SIRI profile availability

3.3.6 RECOMMENDATIONS FOR NETEX & SIRI

A last question of the executed survey in relation to data standards sought to retrieve information about whether there are any technical challenges faced by the countries that have implemented NeTEx and/or SIRI and record their experiences. The only countries that have provided feedback in this question are Norway/NPRA, Slovenia, Austria, and Netherlands. Such feedback is summarized in Table 3.4.

Table 3.4 Technical issues and experiences/challenges recorded in relation to NeTEx & SIRI

Country	Technical issues and recorded experiences regarding NeTEx & SIRI
Austria	- Although Austrian NeTEx Profile is EPIP conform, data sets not always compatible with other national NeTex implementations - The further extension of the national NeTEx profile according to the new/upcoming EPIP profiles and new modes is an open issue
Netherlands	The standards should be freely and publicly available from the European Commission
Norway	- Too many profiles have been made, data will not be interoperable. Limit the numbers of profiles, if someone is developing new ones, make them stop and choose an existing one that fulfil your needs. Go for plug&play NeTEx and SIRI data files/feeds. - A coherent validator. - Development of open-source services working in the ecosystem of MMTIS are ongoing, need to make frequent and efficient changes and enhancements to the NeTEx/SIRI standards and profiles. CEN construction is not suitable for that today.
Slovenia	EPIP and thus the Slovenian profile for NeTEx contains the Line element, which can be grouped into groups of lines. The problem of the general EPIP profile is that the exact geometry of the line (its geographical course) is not mandatory data.

Interestingly, the Norwegian partners stress very emphatically that a plethora of NeTEx/SIRI profiles already exist. The challenge, according to them, is to achieve data interoperability and this can be facilitated by the wide adoption

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of existing profiles and not through the development of new ones. Such a comment is essentially validated by the Austrian partners, which indicate that although the NeTEx profile adopted in Austria conforms to EPIP it is not always interoperable with other national profiles. This fact is partially explained as several national profiles have been developed before EPIP, and other EU minimum profiles. It also highlights the need for coordination between MS and between national standardisation organisations across EU. NAPCORE aims to enable this coordination and to lead alignment in different levels. Currently, alignment of national profiles with the European ones is supported, for some MS, by CEF action DATAPT. Further recommendations and guidance are expected to be provided through NAPCORE outputs. The Norwegian partners also stress the need for a coherent validator that will enable the further and precise deployment of NeTEx/SIRI across Europe. This need led to the development of DATA4PT validator[10]. Currently supports NeTEx validation against full NeTEx schema, EPIP (profile), and includes validation rules content wise. The tool is under further development to embed more validation rules regarding consistency and accuracy of provided data, to optimise performance and to extend features for SIRI validation.

Slovenian partners mention as technical comment that Line shape is not mandatory in EPIP but relevant for Slovenian national profile. As EPIP focuses on the minimum passenger information needs to be exchanged and published in NAP according to DR, EPIP provides the possibility to add such a requirement in national profile level, if this addresses national needs, without being an obligation. The technical documentation of EPIP CEN/TS 16614-4:2020, provides relevant guidance.

Finally, another comment made by the Norwegian partners, which also made by the partners from Netherlands, involves the need to make NeTEx/SIRI standards freely and publicly available to the relevant ecosystems (and this need does not conform to the existing CEN structure).

In fact, the official documentation of each CEN standard is made available by each National Standardisation Body (NSB), which decides the conditions of its acquisition[11]. Besides the detailed documentation available in PDF files by NSBs, technical documentation and implementation guidelines are needed for such standards. In this respect, technical artefacts such as the XML schema of NeTEx and SIRI (XSDs), the relevant Unified Modeling Language diagrams (UML), XML examples, and white papers are freely and publicly available in relevant websites and repositories[12]. Nevertheless, the received comments underline the need to make access easier and more unified, facilitate the purchase process and to better communicating. An easy way could be that links towards the NSBs from where the documentation needs to be purchased by each country was communicated through the existing channels of communication of the standards (websites, technical repositories and forums such as GitHub).

[10] Web interface available here https://greenlight.atomite.io/ . Source folders available here https://github.com/ITxPT/DATA4PTTools.

[11] The pricing varies from country to country.

[12] Examples of sources where information is available: https://github.com/NeTEx-CEN, https://github.com/SIRI-CEN , https://netex-cen.eu/?page_id=14, https://www.netex-cen.eu/model/conceptual/part1/index.htm, https://data4pt.org/ , https://www.siri-cen.eu/ ,

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4 Additional survey results

This chapter provides insight into the outcomes of the remaining parts of the executed survey. Provided information encompasses types of NAPs, data quality, data licensing, compliance assessment, and foreseen new publication in NAPs.

4.1 Types of NAPs and metadata

Another part of the survey revolves around the classification of NAPs based on their architecture (database, web-links, or both). A database or data broker NAP operates as a centralized data platform enabling its users to directly upload/download data or even consume them via an available API. On the other hand, a web-link or metadata repository NAP provides metadata (i.e., descriptions of published datasets that may be hosted in an external platform) and/or links for getting access to published datasets. In such a case, NAP is not involved in the data exchange process between data providers and data consumers since it operates as a decentralized data platform.

Figure 4.1 provides an overview of NAP types across Europe. As it appears, the number of NAPs that are purely weblinks represents almost half of all answers received (Norway, Sweden, France, UK, Latvia, Lithuania, Germany, Netherlands, Austria, Slovakia, Switzerland, Cyprus). On the other hand, Bulgaria, Hungary, and Poland declared that their NAP is exclusively a database type. A significant number of countries stated that their NAP is both database and web-link (Portugal, Spain, Finland, Denmark, Greece, Italy, Romania, Croatia, Estonia, Belgium, Czech Republic). It is worth to note that the German NAP should not be solely addressed as a weblink type of NAP since it provides a data brokering interface to facilitate contractual agreements between owners and users of data.

Another question of the survey involves the availability of metadata and data discovery services. This question stems from a requirement set by the Delegated Regulations supplementing the ITS Directive according to which NAPs should facilitate the searching and finding of relevant information through, among others, the availability of properly defined metadata and data discovery services.

Figure 4.2 presents the answers received for this question. As it can be observed, the majority of European countries NAPs publish metadata and/or provide data discovery functionalities. It is noteworthy that from the countries from which we received a negative response, only two are the countries that have an operational NAP (i.e., Finland and Lithuania). Therefore, it can be assumed that the remaining countries will probably provide metadata and/or discovery services once their NAP implementation is finalized.

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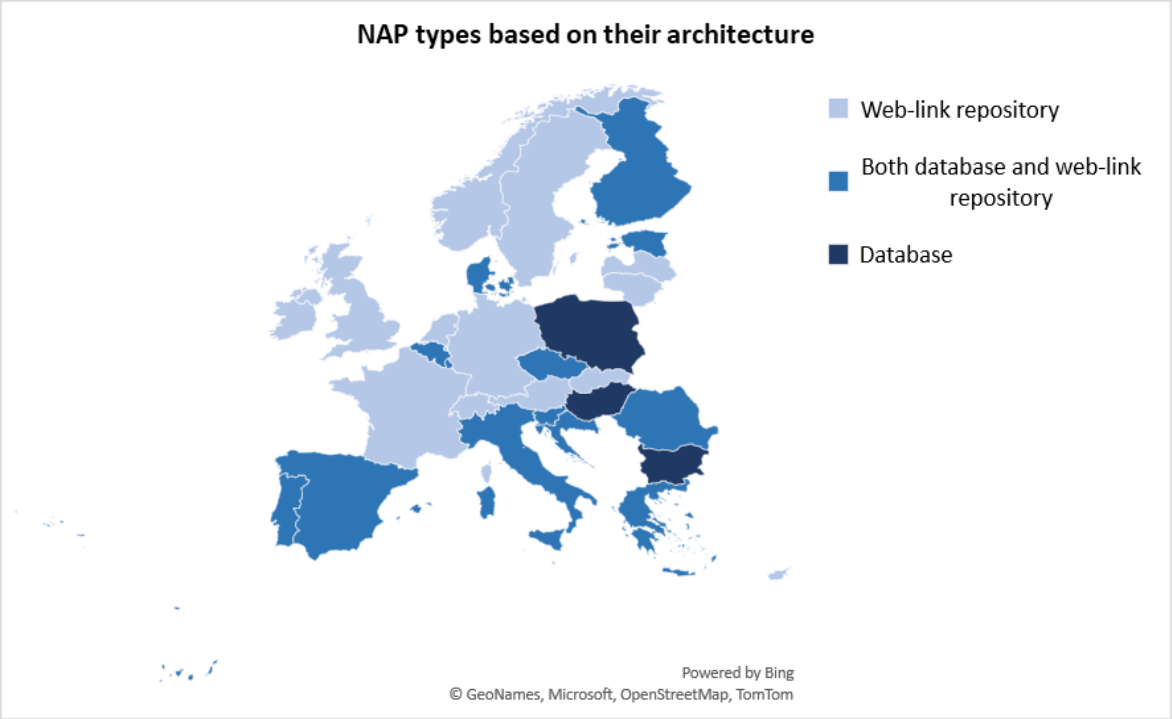

Figure 4.1 Types of European NAPs based on their architecture.

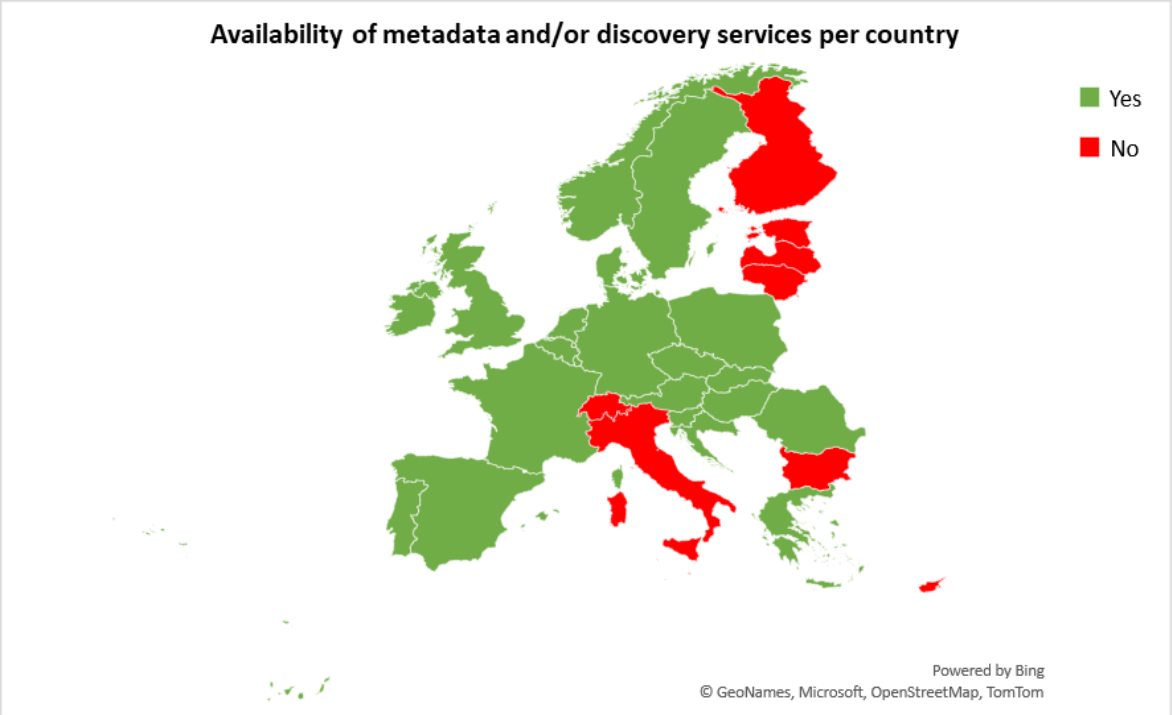

Figure 4.2 Availability of metadata and/or discovery services per country.

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4.2 Quality of data published by NAPs

Intelligent Transport Systems (ITS) constitute a major representative of the paradigm shift in the transportation sector. However, the value of ITS services including their acceptance rate by travellers or other actors of contemporary transportation systems heavily depends on the quality of the data utilized/consumed for the provision of such services. In this respect, several Delegated Regulations supplementing the ITS Directive (i.e., (EU) 2015/962 and (EU) 2017/1926 or even the updated (EU) 2022/670) address data quality as an important part of the provided metadata. Moreover, all Delegated Regulations mention the need for defining appropriate quality criteria as well as that data providers shall ensure the timely renewal and quality of data provided through NAPs. The latter implies that the handling of data quality constitute to a greater extent a responsibility of data providers or the authorities competent for assessing the compliance of provided data. Nevertheless, the executed survey includes a question that seeks to provide insight into whether NAPs provide information (e.g., through their metadata) about the quality of published data and the extent to which specific quality criteria/metrics/values are adopted.

Table 4.1 Overview of responses regarding the quality of data published through NAPs.

Country	Data quality
Austria	Registered Users and companies will be approved by the administrator while registration. Criteria for data publishing are: data are about Austria, data are relevant for delegated regulations. Datasets will be validated by the administrator. If questions raised the publisher will be contacted. Each data description needs to be revised by the publisher annually.
Belgium	There is no defined quality framework to systematically evaluate the quality of the datasets registered on the NAP. There was a control body assigned in 2021 whom evaluated some of the registered datasets (random selection) to see if they fulfilled the requirements of the DR (2017/1926) MMTIS. A new control body will be appointed in 2022 for MMTIS-RTTI-SRTI-SSTP.
Bulgaria	Not available
Croatia	-
Cyprus	No data quality data are reported.
Czech Republic	The quality is NOT reported at the moment (just as a written report accompanying self-declaration form = available to MS as authority). Traffic Information are internally checked for their consistency by operators at National Traffic Information Centre (NTIC). Some data sources (i.e., police) are trusted implicitly, other data i.e. from municipalities are checked. Error in data, if found are internally logged as issues into the reporting system and then dealt with (reaction and correction time being one of the KPIs). There is a room for improvement in structural quality and completeness of the published data sources.
Denmark	The document: “Procedures for establishing quality” will be forwarded via email.
Estonia	-
Finland	No quality information available
France	The French NAP on SRTI, RTTI does not indicate the quality procedure, but each event is subject to validation by the road operators. For the French Ministry which operates the national road network, this validation is done through the TIPI IT system deployed within the EasyWay program. For MMTIS, a dedicated tools in open source provide analysis of the quality of the MMTIS data with 5 level.
Germany	We recommend using the quality requirements defined by the “Quality Packages”, as published by EU EIP sub-activity 4.1. We also provide a voluntary metadata field “quality information” that can be filled for each data set. However, this is rarely used and we are not aware of MDM data providers that actually provide any quality information so far.
Greece	The quality of accommodated data is freely assessed by data providers. Relevant predefined (fixed) fields in the metadata page of each publication include the update frequency of data resources (applicable for dynamic data) and date of the last publication update.

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Hungary	There are no quality measurements implemented yet. As for EU EIP Metadata Catalogue 2019, the quality of the data is a free text space among metadata. This has to be harmonized.
Ireland	-
Italy	-
Latvia	Not available
Lithuania	The datasets published in the NAP are formed on the basis of data captured in the following state information systems: - Traffic Information System accumulating dynamic traffic data (traffic counter data, road weather station data, Traffic registration data, EV charging stations data, etc.); - Road asset management information system accumulating static road data (roads elements, road parameters, environmental protection, traffic safety, speed cameras, traffic data, road works, road statistics, etc.); - Public transport multimodal journey planning system accumulating journey planning data (public transport timetables, routes, stops, stations, airports, etc.). In the information systems listed above there are implemented the data quality validation tools such as e. g. completeness of mandatory fields, compliance of the data format with the requirements of the data specification, etc. The quality criteria, quality requirements and quality assessment methods/processes for the NAP data and services (according to EU EIP Quality Package) not implemented yet.
Luxembourg	-
Malta	NAP is not operational yet
Netherlands	Not available
Norway	Work in progress on assessment of data quality for selected datasets.
Poland	In general, Polish NAP has a technical data quality standard - data compliant with the DATEX II standard. In terms of content-related quality, quality indicators are not provided due to the fact that the data are taken from other road managers, who are substantively responsible for the data provided to NAP. Basic requirements from the NAP Data Providers are published in „KPD_Instrukcja_dla_DDiOD_EN_07.00_201204.pdf" in location https://kpd.gddkia.gov.pl/index.php/en/download/
Portugal	The multimodal travel information metadata includes the quality information elements specified by the coordinated metadata catalogue, namely the update frequency, the quality description, and the national body assessment status. These elements are, however, provided by the data publishers and are not controlled by IMT.
Romania	-
Slovakia	In attachment we are sending report of each delegated regulation
Slovenia	Providers already provide manual quality control and have trained people for that.
Spain	-
Sweden	-
Switzerland	Planned. Several data quality criteria have been identified to be communicated on the NAP e.g., Completeness, Timeliness, Accuracy of traffic volume, of traffic speed and the accuracy of vehicle classification.
United Kingdom	Generally speaking, any and all transport data is catalogued on Find Transport Data. We intend to roll out quality indicators as Public Beta progresses.

Table 4.1 provides an overview of the responses to the asked question. As it can be observed, the provided responses are quite heterogenous. In particular, some countries mention that either no information is currently provided through their NAP about the quality of published data or quality criteria/requirements/assessment methods have not yet been implemented. Some others mention that provided information encompasses the update frequency of data resources, the latest update date of a dataset, free text quality descriptions (in line with the EU EIP Coordinated Metadata Catalogue), and/or the status of the compliance assessment process (in relation to each dataset). It is noteworthy that Germany suggests the use of a systematic framework for assessing data quality (i.e., the quality packages developed by the EU EIP project); however, it is also suggested that the implementation of a such a framework is under the responsibility of data providers. In overall terms, the actors that have been mentioned as responsible for the quality of data published through NAPs include data providers,

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TMC and road operators, “control bodies” (that will be established in the future), and the operators of state information systems that are, for instance, equipped with data completeness check functionalities. Irrespective of the followed procedures and who is addressed as responsible for checking and assessing the quality of data, it appears that most NAPs do not provide data quality-related information and criteria. Finally, it appears that there is a significant interest in the harmonization of the quality criteria and corresponding assessment methods as an intermediate step for enabling the provision of data quality-related information to NAP users. This interest falls partly under the scope of a dedicated NAPCORE activity within WG3.

4.3 Usage of NAPs

One of the most important indicators of a data platform involves its practical utility as a data exchange mechanism, but additionally (and potentially more importantly) its impact on the relevant ecosystem. To this end, a specific part of the executed survey aims to track the number of parties providing ITS-related data to NAPs as well as the number of parties that use data provided through NAPs for the development and provision of ITS applications and services. Furthermore, a distinction is made between public and private entities in an effort to acquire further evidence about the usage rate of NAP both by the public and the private sector. Specifically, countries were asked to indicate the number of public and private organisations providing and using data to/from the NAP. The responses to this question are summarized in

Table 4.2.

As regards the data providers, it appears that in several countries the provision of data to the NAP follows a centralized pattern. A typical example constitutes the case of Austrian NAP, which provides a broad range of data (at least according to the adopted categories – see Chapter 2), but these data are made available by 10 data providers in total (i.e., 6 public providers and 4 private data providers). On the opposite side stand, for instance, the NAPs of Germany and Finland which also provide a wide variety of data, but these data are made available by multiple data providers. With respect to sector to which providers belong (i.e., public versus private), the acquired feedback is quite heterogeneous. In particular, in certain countries data providers belong solely to the public sector (e.g., Denmark, Croatia, Switzerland). In some others, the share of public and private data providers is more or less the same (e.g., Austria, Greece, Poland). Nonetheless, there are several countries in which the private data providers clearly outweigh the public data providers (e.g., Finland, Netherlands, Italy). As a result, it can be generally deduced that NAPs are supported by both the public and private sector (at least in some countries). However, such a statement requires further validation because there is no available information about the amount of data (or the geographical coverage of data) made available by either type of data providers.

As regards the users of data, it seems that only a few countries are able to estimate their number. This can be attributed to main reasons. Firstly, the NAP of several countries provides open data the download/consumption of which does not require registration on behalf of NAP users. Secondly, registration is not necessarily equal with data usage. For instance, there are 47 companies registered to the NAP of Denmark; however, it is unknown whether all these companies utilize with the same rate and frequency data that are available by the Danish NAP. With respect to the countries that are able to track this information, the figures are promising. For instance, the data providers/users of the German NAP are estimated to 324. In Czech Republic, there are more than 200 subscribers to the NTIC service providing road traffic data. Similarly, in Hungary the number of data users/consumers is estimated to 104 that clearly outweighs the number of data providers. Finally, in Switzerland there are 10-12 that consume road traffic in a minute basis.

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Table 4.2 Overview of responses regarding the number of organizations providing and using data to/from NAPs.

Country	Number of public and number of private organisations providing data to the NAP	Number of public and number of private organisations using data from the NAP
Austria	public 6, private 4	Not recorded
Belgium	34	Unknown (no need to register to consult the NAP)
Bulgaria	Not available	Not available
Croatia	5 public organizations	Around 10 public organisations
Cyprus	3	Can't be defined
Czech Republic	all public organizations gathering road traffic information, as required by Czech law, are providing to the National Traffic Information Center (NTIC), the NTIC publishes concentrated data as several data sources by topic via distribution interface (https://mobilitydata.rsd.cz) and its metadata via NAP (https://registr.dopravniinfo.cz/en), --- all public organizations responsible for public transport are, as required by Czech law, are sharing data at the MS level (complicated governance), data available at https://data.gov.cz/datasets theme: transport, owner: ministry of transport, original data producers are not present as the data are integrated but there is plenty (all counties, municipalities, public services, emergency services, ...), none of the private organization provides data through NAP	Road traffic data: NTIC reports to have more than 200 subscribers (subscription requires registration) , --- Multimodal data: there is no recording of unique data access nor registration, but data are definitely used by travel planning services (several Czech idos, seznam,…) and global i.e. Google
Denmark	public 2	Around 47 companies have registered on the NAP – it is not easy to see if they all actually use the data. Only very few public organisations uses data from the danish NAP.
Estonia	-	-
Finland	Public 36 / private 3887	N/A
France	SRTI and RTTI: 11 public organizations; 20 private organizations MMTIS: 253 public authorities in charge of the public transport are providing data covering 91,2 % of the population; 10 private organizations	40 entities are using data from transport.data.gouv.fr (refers to voluntarily declared reusers, since the NAP does not require authentication for the use of data)
Germany	531	324
Greece	public 4, private 2	This information is unknown, considering that the Greek NAP provides only open data and is developed on a data management system designed for open data exchange (i.e., CKAN).
Hungary	public 2	104
Ireland	-	-
Italy	3 public organizations (it includes also ANAS, a public society which manages a large part of the national road network, and Traffic Police). 19 private organizations	1 major public organization (RAI - Italian radio and television). 4 private organizations + digital applications and social channels
Latvia	2 public organisations	-

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Lithuania	Public 1, private 0, Lithuanian Road Adminsitration, as the manger of the Traffic Information System, Road asset information system, Public transport multimodal journey planning system, is responsible for the provision data to the NAP.	The registration for data consumers is not required. All data in the NAP are published as open data. Currently there is no information how many organisations using data from the NAP.
Luxembourg	Between 15 and 20 public organisations and between 5 and 10 private organisations	-
Malta	NAP is not operational yet	
Netherlands	3 public + 35 private	Not available
Norway	1. The NPRA (approx. 20 datasets I total covering state-, county- and municipal roads), 2. Entur (approx. 60 public and private data providers), 3. Enova (1 dataset - charging stations), No private organisations providing data, some private data providers are included in the Entur dataset (National dataset for public transport information in Norway).	NAP and national hubs (e.g. DATEX) more than 500 users, Entur encourage open and free use of MMTIS data, no registration required (approx. 200 users)
Poland	4 public 3 private	5 public 18 private
Portugal	Currently, 13 organisations are publishing data in the NAP; that number may change in future.	-
Romania	4	-
Slovakia	Public companies (SSC, NDS...) 10, Privat (FCD, CFCD, POI) 1, Road managers, Municipalities	29
Slovenia	DARS, DRSI, IJPP	We have 150 users using data from the NAP. We classify users according to the purpose of data use. We have 48 private and 102 public organisations using data from the NAP.
Spain	NAP DGT: 7 public organisations and 3 private organisations, NAP MITMA: 27 public organisations, 12 private organisations and 5 transport consortia and authorities	-
Sweden	-	we only have metadata and links
Switzerland	2 public (1 federal, 1 cantonal)	10-12 users actively and continuously downloading new traffic count data per minute
United Kingdom	Currently 30 publishers have added metadata to Find Transport Data as we prepare for Public Beta. We hope to expand this to 50 by the start of the full Public Beta proper and continue to grow that as the site develops.	The site is currently not live. We hope to secure widespread engagement when it is fully announced and working in full Public Beta.

4.4 Data licenses and contracts

Both licenses and contracts set a reference basis that describes in an accurate manner the terms and conditions under which data can be shared and re-used with/by parties other than their provider. In other words, both data licenses and contracts operate as a mechanism to protect the data that is being exchanged. The crucial difference between data exchange licenses and data exchange contracts is that the latter should be signed by the data consumers or subscribers to data exchange interfaces.

Taking into consideration the observed trend for open data as well as the usefulness of open data for the enlargement of ITS ecosystem, a part of the executed survey sought to acquire information about the amount of

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open data that is exchanged through NAPs. Figure 4.3 presents the acquired information per country, while Figure 4.4 indicates the frequency of estimated percentage ranges. As it can be observed in both figures, the vast majority of data that is exchanged through NAPs does so under an open license. Certain countries have declared that the provision of the required information is not applicable either because their NAP is not yet fully operational or because they provide data under a contract that complies with open licenses but firstly needs to be signed (i.e., Czech Republic).

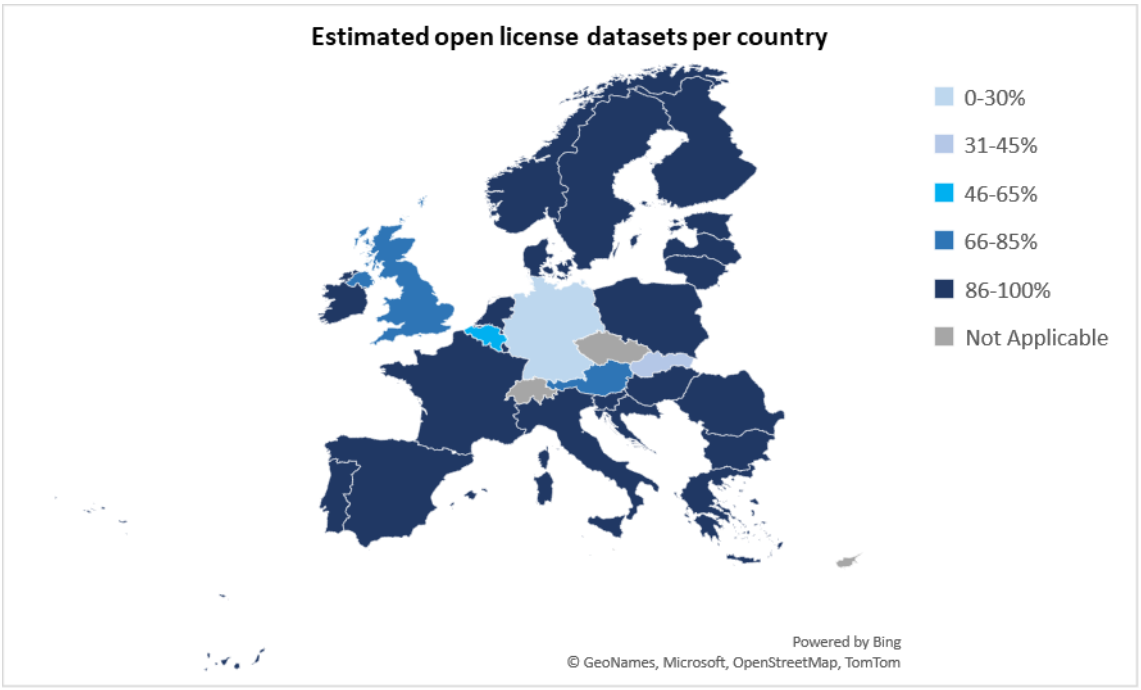

Figure 4.3 Estimated open license datasets per country.

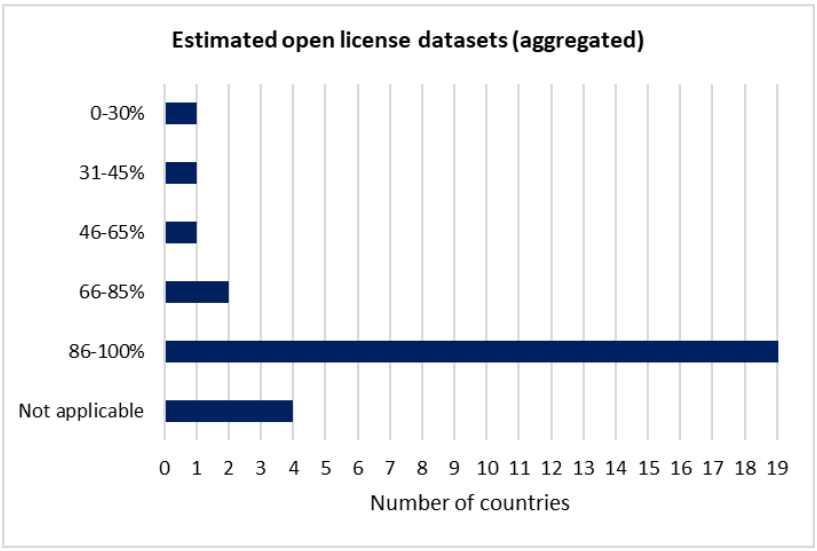

Figure 4.4 Frequency of answers concerning the estimated percentage of open license datasets.

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Beyond the estimated percentage of data that is exchanged under an open license, another part of the executed survey sought to collect information about the license types and contracts that are supported by NAPs. This is done for two main reasons. Firstly, to understand the extent to which NAPs promote the harmonized provision of terms and conditions for data reuse and, secondly, to gain insight into whether national or universal licensing frameworks are utilized by data providers across Europe. An overview of the collected information is provided in Table 4.3. As it seems, the most countries make use of Creative Commons licensing framework, such as the Creative Commons Zero (CC0) and the Creative Commons Share-Alike (CC BY-SA). Furthermore, some countries declared the usage of national open licenses. Typical examples constitute Norway and UK. The former uses the Nordic Open Government Licences (NLOD), while the latter uses, among others, the UK Open Government Licence (OGL). Other countries, such as Germany and Austria, mentioned that the data license model is individually defined between data providers and data consumers and therefore, their NAP does not prescribe specific license types. Finally, Switzerland mentions an interesting concept, i.e., "mutual data sharing", according to which all stakeholders involved in data exchange ecosystem supply data in on open manner and at the same time they are benefited from available (within the ecosystem) data.

Table 4.3 Overview of all license types used in NAPs.

Country	Please provide a list of all license types of the datasets provided through the NAP
Austria	Unknown, the contracts are concluded by the data publisher
Belgium	License not specified (44); Creative Commons CCZero (33), Other (open) (11), UK open Goverment License (5), Other (non-commercial) (3), Open data commons attribution licernse (2), creative commons attribution share-alike (1), other (not open) (1), Other (public domain) (1)
Bulgaria	No licenses
Croatia	License issues have not been tackled yet. We have an open data policy and we're working on more detailed conditions of use of the data
Cyprus	Currently data are not downloadable
Czech Republic	Road traffic information (https://registr.dopravniinfo.cz/en/providers/cz-ndic/#subscription-process): custom licence for dynamic and static data (similar to CG0), custom licence for ALERT-C. Location table and multimodal information (https://data.gov.cz/datasets): cc-by-4.0 , cc-by-sa-4.0 , no licence
Denmark	Creative Commons Attribution 4.0 International Public License (as Standard). Dataset owner may apply "Special Terms"
Estonia	CC3 similar
Finland	CC BY 4.0
France	etalab open licence
Germany	So far, we don't prescribe a license type. This can be defined individually between the data provider and the data user. For data sets provided by public authorities, we recommend the usage of national standard licenses for government data and spatial data domains.
Greece	Creative Commons Attribution 4.0, Open Data Commons Open Database License 1.0
Hungary	All free of charge
Ireland	CC-BY-4.0, Other (Attribution), Other (Open)
Italy	-
Latvia	N/A
Lithuania	No licenses
Luxembourg	CC BY-SA 4.0, Creative Commons Zero (CC0), Other (Open)
Malta	NAP is not operational yet
Netherlands	CC0

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Norway	CC BY 4.0, Open Government Licence (NLOD)
Poland	-
Portugal	The data are currently public and free of cost; formal terms and conditions for their use are as of yet not defined.
Romania	N/A
Slovakia	License agreements with data suppliers (applicable to all data)
Slovenia	- the source must be written for all data - all data are free to use, except: - DARS - events (roadworks and events) on the primary and secondary road network, equipped with geographic coordinates are payable
Spain	Licence and Free of charge, license fee
Sweden	CC0
Switzerland	"Mutual data sharing"
United Kingdom	Creative Commons Attribution Creative Commons Attribution Share-Alike Creative Commons CCZero Creative Commons Non-Commercial (Any) GNU Free Documentation Licence Licence not specified Open Data Commons Attribution Licence Open Data Commons Open Database Licence (ODbL) Open Data Commons Public Domain Dedication and Licence (PDDL) Other (Attribution) Other (Open) Other (Public Domain) UK Open Government Licence (OGL) Commercial Licence Other (Not open)

4.5 Compliance assessment

An obligation of Member States constitutes the assessment of compliance of road/transport operators, road/transport authorities, service providers, and other actors involved in the ITS ecosystem or provide data through NAPs with the requirements set out in the Delegated Regulations supplementing the ITS Directive. Such an obligation is not under the responsibility of NAPs and NAP operators, but, as specified by these Delegated Regulations, of some authorities that are/will be declared as competent by each Member State. Having in mind the cooperative efforts and suggestions of EU EIP, TISA, and ESPORG in the past, this compliance assessment process can, in general, be discerned into two main steps. The first one revolves around the submission of self-declarations on behalf of the actors mentioned above, while the second one involves the assessment of the submitted self-declaration forms by the competent authorities. The extent to which such a process has been executed for each NAP dataset may constitute an additional data quality indicator and important metadata field thereof.

Having in mind that, as stated above, the compliance assessment is out of the concrete responsibilities of NAP and NAP operators, a specific part of the survey sought to acquire any available information about the estimated number of datasets for which a self-declaration form has been submitted and about the estimated number of datasets for which a compliance assessment process has, ideally, been completed. The results concerning the first

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topic are presented in Figure 4.5 and Figure 4.6. Similarly, the results concerning the second topic are presented in Figure 4.7 and Figure 4.8.

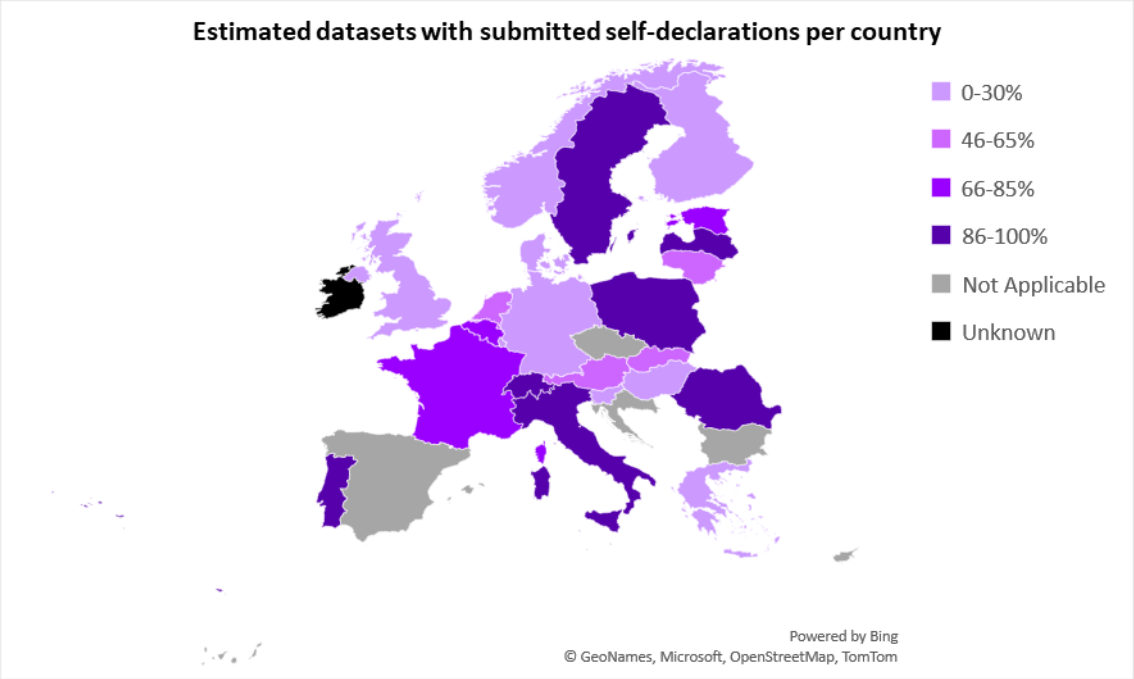

Figure 4.5 Estimated datasets with self-declaration per country.

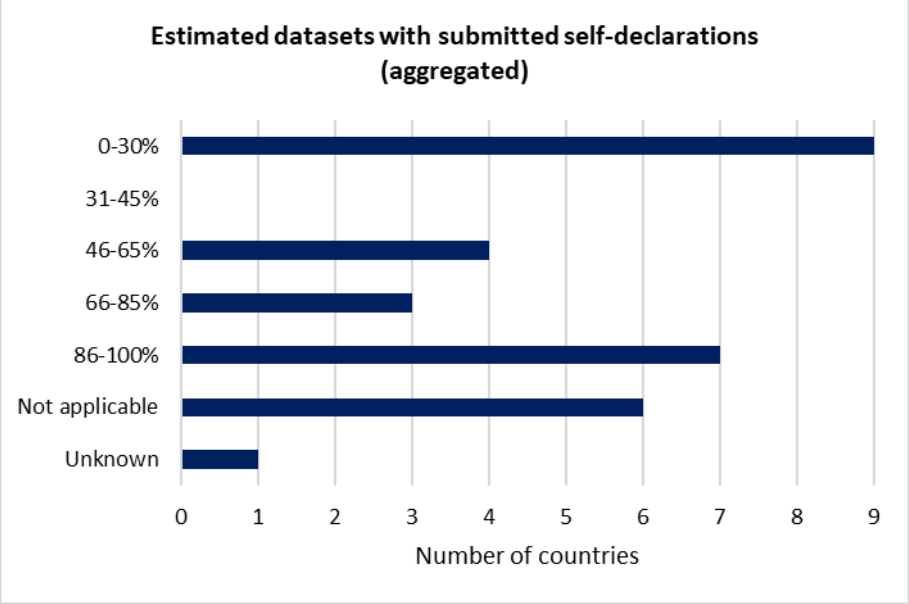

Figure 4.6 Number of countries providing datasets with self-declaration form.

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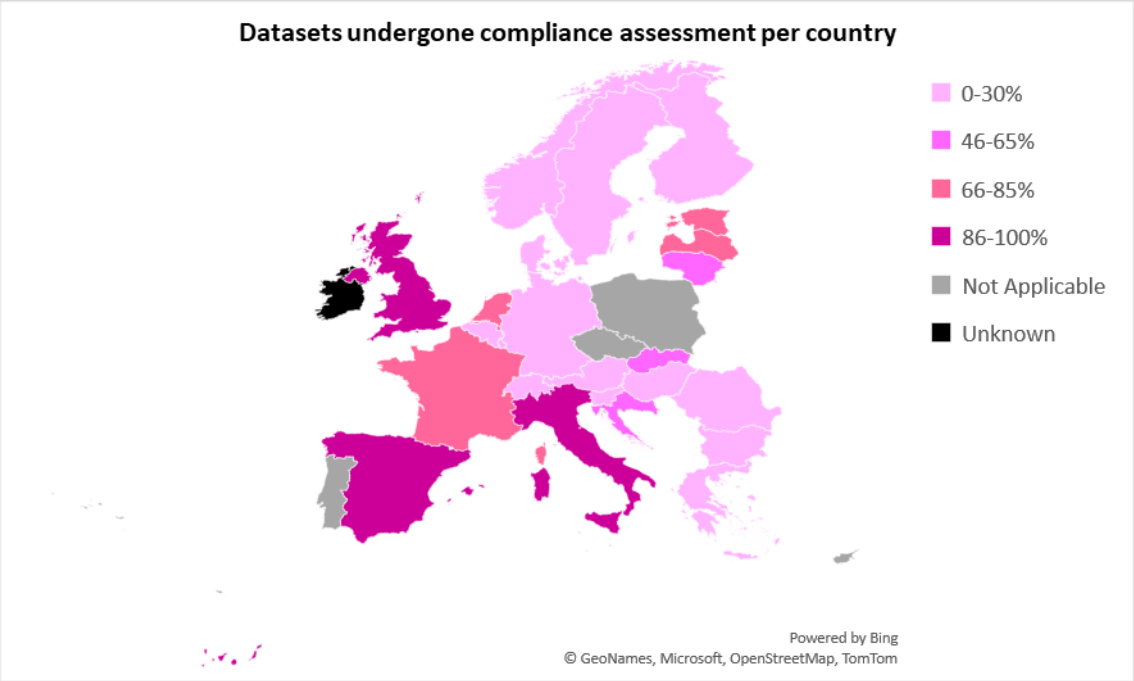

Figure 4.7 Estimated datasets undergone compliance assessment procedure per country.

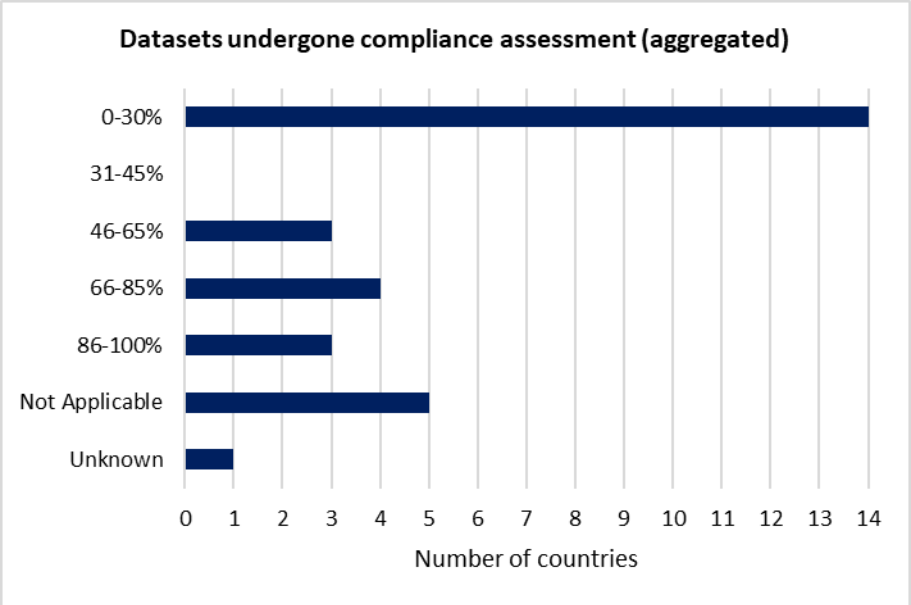

Figure 4.8 Number of countries that their datasets undergone compliance assessment procedure.

As it can be observed in Figure 4.5 and Figure 4.6, a self-declaration has been submitted (by data providers) for a limited number of datasets or has not been provided at all in the critical mass of countries. However, there are some countries in which a self-declaration has been submitted (by data providers) for a significant number of datasets (i.e., there are 10 countries in which a self-declaration has been submitted for more than the 66% of published datasets). Furthermore, there are four countries in which a self-declaration has been submitted for

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almost the half of published datasets. Finally, as it can be observed in Figure 4.7 and Figure 4.8, the number of countries in which a compliance assessment has been completed is much less than the number of countries in which a self-declaration has been submitted. In this respect, it appears that compliance assessment constitutes an open challenge for the ITS ecosystem (including National Bodies or other competent authorities). For this reason, this topic is investigated by a separate WG of NAPCORE. Next versions of the current report will seek to monitor the extent to which the recommendations made by this WG are or can be adopted by the European countries.

4.6 Foreseen new publications

A final part of the executed survey sought to acquire information about the foreseen new publications in European NAPs. This is done in an effort to facilitate an initial identification and understanding of the ecosystems (beyond those strictly defined by the DRs supplementing the ITS Directive) in which NAPs should play a key role as a data exchange interface/mechanism. The acquired information is summarized in Table 4.4. As it appears, data falling into the scope of the following domains/categories are to be or already provided thru European NAPs in the future:

- Static and dynamic data about alternative fuels infrastructure in line with the Alternative Fuels Infrastructure Regulation (AFIR) and the IDACS project
- Data from national mobility research projects (reports, statistics)
- Data for mobility policies (e.g., LEZs) and new modes (e.g., bicycles, carpooling)
- Parking data including urban (street level) parking
- Road maintenance data (e.g., GPS position of snowplough fleet)
- Weather data, emergency alerts, and road temperature data
- Data about serious road accidents
- Waterway data
- Static data about transport infrastructure in line with INSPIRE
- Video feeds from traffic control cameras
- Data for traffic light control
- Static and dynamic data from Variable Message Signs (VMS)

Table 4.4 Overview of answers regarding datasets to be provided thru NAPs in the future

Country	Are there any new types of data planned to be provided in your country's NAP besides the ones required by DRs? Please briefly comment on these types of data
Austria	Data from national mobility research projects; Mobility reports, statistics and studies
Belgium	Maybe "Real Time Data" for MMTIS in the future
Bulgaria	No, there aren't
Croatia	At this moment we are not planning to provide other types of data besides the ones required by DRs
Cyprus	Video feeds from traffic control cameras, Traffic counts data
Czech Republic	We plan to consolidate current data sources as for the quality format and form of provision, planning to integrate multimodal data into ONE NAP. As for other data: Variable message signs (already providing), extended parking data (including urban parking areas)
Denmark	Yes. The Danish Road Directorate plans to provide open up as much data as possible. Pictures from webcams and TMC Location Code Table, GPS position of snowploughs, air and road temperature is already available on the Danish NAP.
Estonia	-

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Finland	Road maintenance data (snow ploughing, sanding etc.)
France	On transport.data.gouv.fr, work is in progress on opening data for low-emission zones, bicycle counting, carpooling areas, and dynamic data for electric charging stations
Germany	We want to integrate any mobility-related data sets on the NAP, as long as they are offered by any public/private data provider on parallel portals (e.g., regional and urban Open Data portals, spatial data portals etc.). In many cases, these data are not covered by the DRs, and they touch on parallel domains, such as weather information, waterways or public emergency alerts. The goal is to have a single point of access for any mobility-related data in Germany.
Greece	No, there aren't
Hungary	Not data type, but data category: in IDACS project, EU Member States have to provide DATEX data about the alternative fuelling stations, focusing on electric charging stations – static and dynamic availability too. I am not sure where and how but maybe it should be considered as a harmonization point.
Ireland	Unknown
Italy	-
Latvia	Serious road accidents (blackspots) Weight restrictions for freight transport
Lithuania	No, there aren't
Luxembourg	Unknown
Malta	No operational NAP
Netherlands	Subscriptions and fares are planned for public transport information
Norway	The NAP will be extended with information concerning the infrastructure and restriction according to a harmonized European structure as defined in INSPIRE Transport Networks and TN-ITS. The information is available in the NAP now according to the internal Road Database structure, but not in a harmonized European structure.
Poland	No, there aren't
Portugal	-
Romania	-
Slovakia	No, there aren't
Slovenia	The National Access Point also provides information on charging stations for electric vehicles, which are implemented under other DR (AFIR).
Spain	-
Sweden	-
Switzerland	Traffic data logged by detectors used for traffic light control
United Kingdom	Find Transport Data is originally conceived to concentrate on roads-based data, but it is hoped that it will expand to cover aviation, rail and maritime.

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5 Summary & conclusions

This report presents the results of a NAPCORE research regarding the status of NAPs implementation in Europe, organized as part of the activities of Task 3.1 of WG3. This research continues the legacy of similar endeavours carried out in the context of EIP+ and EU EIP projects. It is the first time that the survey behind this research is organized with two options: a paper form and an online form. The online option was chosen by about half of the respondents, which shows that it is a good and efficient way of retrieving the desired information. Furthermore, it is the first time that the information acquired from this survey is enhanced by desktop research. This is done for two main reasons. Firstly, to collect the desired information from the countries that did not provided feedback and, secondly, to validate (where possible) the information acquired from the survey.

The survey was completed by responsible ministries, NAP operators, National Bodies, and/or other relevant actors participating in NAPCORE or who have been contacted by NAPCORE partners. **The survey was circulated to 30 countries and responses were received from 28 countries.** One completed questionnaire was received per country. For the remaining two countries desktop research has been carried out by the active participants of NAPCORE's Task 3.1.

The survey's questionnaire was divided into a main part and four annexes. The main part requested general information about the NAPs, types of licensing, data quality and availability of data categories defined at a medium to high level of aggregation of the data types required by the DRs supplementing the ITS Directive (2010/40/EU). The annexes of the questionnaire, one for each of the four targeted DRs, requested information about the implemented data standards per specific data type present in the DRs. Only countries the NAP of which acts as database or both database and weblink repository were required to fill out these annexes. This appears to be a rational choice that facilitates the feasibility of information gathering; however, this choice will be reconsidered during the next version of the current report and the research behind it thereof.

Chapter 1 briefly presents the NAPCORE project, the activities of WG3, the objectives of the survey, as well as the methodology followed for this task.

Chapter 2 provides an overview with regard to the status of NAPs of each DR. More specifically, it presents the number of NAPs that are operational, planned or under implementation for all DRs. The results of the EIP+ and EU EIP projects are also included, thus **the evolution of the NAPs can be followed from 2016 to 2021.** As it appears, **almost all European countries operate a NAP for SRTI and RTTI** (26 and 28 countries respectively). Furthermore, it appears that **22 countries have an operational NAP for SSTP**; however, it should be considered that most of the remaining countries did not operate in 2021 safe & secure truck parking places/areas. In this respect, their status is addressed as "Not Applicable". Finally, it appears that **23 countries operate a NAP for MMTIS**. This translates to significant evolution compared to 2019 (almost two years after the adoption by the EC of the MMTIS regulation) where the number of operational NAPs for MMTIS was 8. Nonetheless, it should be pointed out here that the weblink proving access to the MMTIS NAP of several countries does not appear to be fully functional. Having in mind that that an operational NAP does not *necessarily* imply data availability, the same chapter (Chapter 2) pays particular attention to the topic of data availability. This is done based on a medium to high level categorization of the data types mentioned within the DRs supplementing the ITS Directive (2010/40/EU). The extracted information is quite heterogeneous. Firstly, it appears that **static SSTP-related data are made available by the NAP of 14 to 20 countries**. Available data types encompass information about safe & secure truck parking places/areas, their safety

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conditions and equipment, as well as details of parking operators. To the contrary, **only 6 countries appear to make available thru their NAP dynamic SSTP-related data** (providing information about the availability and status of parking places/areas). Secondly, **SRTI-related data** (that are by definition dynamic) **are made available by the NAP of 22 countries**. Such a finding validates the initial assumption made according to which NAP status is not one-to-one related with data availability. The reason behind the observed difference between SRTI NAP status and SRTI data availability will be further investigated in the next version of the current report. At the moment, it is highly accepted that several countries may address datasets provided through their NAP as relevant with road safety and, thus, SRTI DR; however, provided datasets do not necessarily match with the data types specified by the SRTI DR. Thirdly, **static RTTI-related data are made available by the NAP of 18 to 22 countries**. However, this is the case for data types providing information about the road network (e.g., road network links and their physical attributes) and roadside/roadway infrastructure (e.g., tolls, rest areas, etc.). To the contrary, **static data providing information about the usage of the road network** (e.g., traffic circulation plans, freight delivery restrictions, etc.) **are made available by the NAP of only 6 countries**. Furthermore, **dynamic RTTI-related data are made available by the NAP of 20 to 22 countries**. Fourthly, as also stated within Chapter 2, there is an observable discrepancy amongst what types of MMTIS-related data are made available by European NAPs. In particular, **static MMTIS-related (a) supporting trip plan computation, (b) providing information about existing trip plans and auxiliary information (e.g., vehicle facilities), and (c) supporting location search are made available by the NAP of 12 to 19 countries**. On the other end of the spectrum, **static MMTIS-related data (a) supporting detailed common standard and special fare queries and (b) providing information in support of traveller services are made available by the NAP of only 6 to 7 countries**. Finally, it is reported that **dynamic MMTIS-related encompassing dynamic passing times, trip plan, and operational information as well as dynamic information about the availability of mobility services and relevant infrastructure is made available by the NAP of 5 to 8 countries**. A very wide picture of what is available per European country is presented in Table 5.1. It should be noted that specific countries, such as Malta, addressed this topic from the perspective of what is already available in terms of data irrespectively of NAP status, while some others, such as the UK, addressed this topic considering NAP status (for this reason they did not report any data availability).

Chapter 3 is completely devoted to data standards. Specifically, it provides an overview of the existing standards that are used at European level for data exchange through the NAPs and in general for the provision of traffic management and information services. Besides, it pays particular attention to the monitoring of (a) what data standards are implemented in each country per data element mentioned in the Annexes of the DRs supplementing the ITS Directive and (d) whether there is a national profile in place for the standards explicitly mentioned and suggested by these DRs. Finally, it gathers qualitative feedback about the extent to which actors involved in NAP ecosystem are satisfied with these standards or open challenges exist and should be addressed in the future.

As regards what data standards are implemented in each country, it appears that **DATEX II is the dominantly implemented data standard in the context of SSTP, SRTI, and RTTI regulations**. Specifically, **the number of countries that exchange, by using DATEX II, information about (a) the attributes of safe & secure truck parking places/areas, (b) the safety conditions and equipment of safe & secure truck parking places/areas, (c) the contact details of parking operators, and (d) the availability and status of safe & secure truck parking places/areas are at least: 11, 9, 8, and 6, respectively**. The use of other data standards in the context of SSTP is very low (compared to DATEX II). Similarly, **the number of countries that exchange, by using DATEX II, dynamic road-safety related traffic information is at least 19**, while the use of other data standards in the context of SRTI is also very low (compared to DATEX II).

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Table 5.1 Overall picture of data availability in all European countries

Country	Dynamic information about the availability of safe & secure parking areas	Static information about the safety & equipment of safe & secure parking areas	Static information about safe & secure parking areas	Dynamic information about road safety-related events/ conditions	Static information about the road network	Static information about the usage of the road network	Information about roadway and roadside infrastructure	Dynamic road status information	Dynamic traffic information	Static information for location search	Static trip plan and auxiliary information	Static information for trip plan computation	Static information about traveler services	Static information for detailed common standard and special fare queries	Dynamic passing time, trip plan, and operational information	Dynamic availability of mobility services and relevant infrastructure	Other
Austria	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Belgium	No	No	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No
Bulgaria	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
Croatia	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Cyprus	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	Yes	No
Czech Republic	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No
Denmark	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	No	No	No	No	No
Estonia	No	Yes	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No	No	No	No
Finland	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No
France	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No
Germany	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	No	No	No	No	No
Greece	No	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Hungary	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Ireland	No	No	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No
Italy	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No
Latvia	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No
Lithuania	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	Yes	No	No
Luxembourg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Malta	No	No	No	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No	No
Netherlands	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Norway	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Poland	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	Yes
Portugal	No	No	No	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	Yes
Romania	No	Yes	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No
Slovakia	No	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	No
Slovenia	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No
Spain	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No	No	No	No	No
Sweden	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Switzerland	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

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The number of countries that exchange, by using DATEX II, information about (a) the road network (including its attributes, usage, and roadside/roadway infrastructure), (b) the road status, and (c) prevailing traffic conditions is at least: 6, 13, and 7 respectively. The use of other data standards in the context of RTTI is significant (compared to the use of DATEX II) only with respect to the provision of static information about the road network. Frequently used standards, in this respect, constitutes WMS/WFS and ROSATTE. This can be attributed to the widespread use of WMS/WFS by the developers/maintainers of map servers as well as to the fact that ROSATTE constitutes a component/predecessor of TN-ITS. The next version of the current report will seek to acquire further evidence about the adoption rate of TN-ITS and any existing national plans.

Concerning MMTIS, the obtained picture looks quite heterogeneous. In broad terms, it appears that **NeTEx is the mostly used data standard for the exchange of static MMTIS-related information**. This is especially the case for the exchange of data (a) supporting location search, (b) supporting detailed common standard and special fare queries, (c) providing insight into existing trip plans and auxiliary aspects (e.g., vehicle facilities), and (d) supporting trip plan computation. However, the number of countries that have implemented NeTEx is quite low especially compared to the number of countries that have implemented DATEX II. Concerning **the deployment and adoption rate of SIRI it is impossible to draw concrete conclusions mainly due to very low availability and exchange of dynamic MMTIS-related data**. Based on the existing figures, SIRI is the mostly used data standard for the exchange of dynamic passing time, trip plan, and auxiliary information. Interestingly, the use of DATEX II is also reported in the exchange of dynamic MMTIS-related information. This is the case for the exchange of dynamic information about the availability of charging/refuelling stations as well as the availability of car parking space. This finding validates the existence of overlaps in data standards, which is a topic under investigation by the WG4 of NAPCORE.

In terms of location referencing, **the mostly utilized methods for encoding point locations appear to be, in descending order, coordinates, Alert C point, Open LR point, and point along linear element**. Furthermore, **the mostly utilized methods for encoding linear locations are, in descending order, Alert C linear, linear along linear element, and Open LR linear**. Finally, **the mostly utilized methods for encoding area locations are, descending order, Alert C area, Open LR area, and GML multipolygon**. Noticeably, a significant number of countries has reported the use of the GeoJSON for encoding point, linear, or area locations.

Analysing the responses regarding DATEX II versions used, **a significant diversity appears to exist**. The oldest version that is used to a significant extent is version 2.0, which has been released in June 2011. **The dominantly used version, on the other hand, constitutes version 2.3**, which has been released approximately three years later (September 2014). The release date of this version correlates to a significant extent with the adoption dates by the EC of several DRs that are associated with and make explicit reference to DATEX II standard. There are also several datasets complying to one of the latest versions of DATEX II, i.e., version 3.2. **Many NAP operators and data providers indicate that they have plans to update provided datasets to comply to newer DATEX II versions.** The number of countries that have reported the availability of national DATEX II profiles appear to be six (Austria, Czech Republic, Netherlands, Norway, Slovenia, Croatia). **With respect to recorded experiences, it has been pointed out that the model allows a lot of exceptions, leading to lack of interoperability amongst cross-border data providers.** The existence of ambiguous data elements within the European Reference Profiles is also reported. Furthermore, one country has mentioned the need to define mandatory fields and declare a minimum set of required profiles as a means of standardizing RSPs and data exchange through DATEX II. The same country has also mentioned the need to modernize data exchange mechanisms to conform to broker-based architectures. Another country has stressed the importance of location referencing methods and the necessity of reference profiles suggesting a

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preferred method. Finally, another country has reported that the latest versions of DATEX II resolves several issues existing in previous ones, especially in relation to location referencing.

The number of countries that have reported the availability of a national NeTEx profile is 11 in total. From those, **8 are the countries that already use this profile, while the remaining 3 have not used it yet.** There are also **3 countries that have reported that the specification of a national NeTEx profile is on-going.** Furthermore, the number of countries the profile of which is based on the European one (EPIP) is 9, while the countries that profile of which is compatible with EPIP are 12. In particular, **the Nordic profile (jointly used by Norway and Sweden) is partially based on but fully compatible with EPIP and the Italian profile constitutes an extension of EPIP that remains compatible with it.** On the other hand, the number of countries that report the availability and use of a national SIRI profile is much less (compared to NeTEx). In particular, **2 countries mention that they have specified and use a national SIRI profile, 3 countries mention that they have specified but not yet used a national SIRI profile, while 2 more countries mention that the specification of a national SIRI profile is on-going.** Finally, it is suggested by several countries that there is a need to limit the number of national profiles, coordinate the harmonization of existing ones, and ease the access to these standards including their dependencies with other CEN products/artefacts.

Chapter 4 provides insight into the outcomes of the remaining parts of the executed survey. These parts revolve around the **classification of NAPs based on their architecture, the availability of metadata and discovery services, and the usage of NAPs.** Moreover, these parts entail additional information about **data quality, data licensing, compliance assessment, as well as foreseen new publication in NAPs.**

According to the received feedback, **a significant number of countries appears to operate NAPs which comply to the weblink NAP architecture (metadata repositories)**. These countries seem to be Norway, Sweden, France, UK, Latvia, Lithuania, Germany, Netherlands, Austria, Slovakia, Switzerland and Cyprus. It is noteworthy that the NAP of some countries should not be solely addressed as a weblink type of NAP since they provide a data brokering interface to facilitate contractual agreements between NAP owners and data users (e.g., the German one). **The majority of countries operates NAPs complying to a hybrid architecture**, namely, both database and web-link (i.e., Portugal, Spain, Finland, Denmark, Greece, Italy, Romania, Croatia, Estonia, Belgium, Czech Republic).

With regard to the availability of metadata and discovery services, the results have shown that the vast majority of countries provides these functionalities. However, a minority of countries stated that they cannot provide this type of information through their NAPs. In some cases, the lack of metadata and discovery services can be attributed to a different operational approach. For instance, the Finish NAP for SSTP/RTTI can be addressed as a wide API service configurable to data requests. Furthermore, the Italian NAP for SSTP/SRTI seems to resemble a dashboard-like paradigm, providing insight into existing traffic events.

In terms of data quality, the results show that **data quality is interpreted differently by NAP operators**. Some of them mention that there is neither available information about the quality of the datasets nor implemented quality criteria/requirements. Some others **mention that the so-called Quality Packages implemented in the context of the EU EIP project should be the basis for defining quality criteria and requirements and feed accordingly the metadata fields of each dataset**. However, it is generally addressed that this is not solely or at all under the responsibility of NAP operators. **Responsible actors, according to the executed research, include data providers, TMC and road operators, relevant control bodies, and operators of information systems providing data to a NAP**. Overall, **all countries highlighted the importance of having implemented harmonized quality criteria following**

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specific norms. For that reason, and recognizing the necessity of the topic, another dedicated task of NAPCORE project, falling under WG3 activities, focuses on the definition of quality frameworks.

Regarding NAP users, the results of the executed research show that t**he provision of data to the European NAPs follows both a centralized and decentralized pattern, i.e., datasets are provided by either few or multiple data providers.** It can also be concluded that **NAPs are supported (in terms of data provision) by both the public and private sector.** However, the respective share is case specific given that in some NAP the number of public data providers clearly outweigh the number of private data providers and vice versa. With respect to **data users/consumers**, it appears that **only few countries are able to estimate their number.** This is attributed to main reasons. Firstly, several NAPs provide open data that do not require registration. Secondly, even in case a registration is required it is uncertain whether registered parties make use of the provided data. Considering only the countries that can make such an estimation, the provided figures are promising. A specific activity of WG3 will seek to demonstrate use cases making use of NAP data in effort to further promote the added value and impact of NAPs in the ITS ecosystem.

Taking into account the usefulness of existing open data with the aim of enlarging the ITS community, a part of executed survey was orientated to obtain information about the amount of open data that is exchanged through NAPs. The results indicate that **most countries provide their datasets under open licensing frameworks**. However, some countries mentioned the difficulty of estimating the percentage of open datasets given the status of their NAP (e.g., not fully operational, under implementation). Finally, there were cases according to which countries provide their datasets under open conditions, but this happens after signing a required contract (i.e., Czech Republic). The most popular **licensing frameworks utilized are Creative Commons Zero (CC0) and the Creative Commons Share-Alike (CC BY-SA).**

Considering that a compliance assessment constitutes an important requirement of the DRs supplementing the ITS Directive (2010/40/EU), a specific part of the survey sought to acquire information about the estimated number of datasets for which a self-declaration form has been submitted and about the estimated number of datasets for which a compliance assessment process has been executed. The results about the first topic show that **in most countries a self-declaration has been submitted for a very limited number of datasets or not submitted at all.** However, there are some countries that break the rule. In these countries a self-declaration has been submitted for a significant number of datasets (i.e., there are 10 countries in which a self-declaration has been submitted by data providers for more than the 66% of published datasets). The results about the second topic indicate that the number of countries in which compliance assessment has been executed is much less than **the number of countries in which data providers have submitted self-declaration forms**. This finding highlights the importance for detailing and harmonizing compliance assessment processes, which constitutes a topic addressed by WG5 of NAPCORE.

Finally, NAP operators and other actors took part in the executed research pointed out **several data types to be provided through NAPs in the future**. These are associated with (a) domains that are also under the scope of policy initiatives other than the ITS Directive (e.g., data for alternative fuel infrastructure), (b) innovative mobility policies/schemes/modes, (c) parking, (d) environmental conditions, (e) road maintenance, (f) spatial information, (g) other modes (e.g., waterways), and (h) traffic management and roadway/roadside digital infrastructure (for more details please refer to Section 4.6).

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Annex I - National Access Points and National Bodies

National Access Points

Country	Safe and Secure Truck Parking	Safety Related Traffic Information (SRTI)	Real Time Traffic Information (RTTI)	Multimodal Travel Information Services (MMTIS)
Austria	https://mobilitydata.gv.at/	https://mobilitydata.gv.at/	https://mobilitydata.gv.at/	https://mobilitydata.gv.at/
Belgium	www.transportdata.be	www.transportdata.be	www.transportdata.be	www.transportdata.be
Bulgaria	https://lima.api.bg/ https://datasheet.api.bg/	https://lima.api.bg/ https://datasheet.api.bg/	https://lima.api.bg/ https://datasheet.api.bg/	https://www.mtc.government.bg/en/category/294/national-access-points-transport-related-data
Croatia	Not applicable	www.promet-info.hr/en/	www.promet-info.hr/en/	www.promet-info.hr/en/
Cyprus	http://www.traffic4cyprus.org.cy/	http://www.traffic4cyprus.org.cy/	http://www.traffic4cyprus.org.cy/	http://www.traffic4cyprus.org.cy/
Czech Republic	https://registr.dopravniinfo.cz/en/	https://registr.dopravniinfo.cz/en/	https://registr.dopravniinfo.cz/en/	https://data.gov.cz/datasets
Denmark	https://du.vd.dk	https://du.vd.dk	https://du.vd.dk	https://du.vd.dk
Estonia	https://www.tarktee.ee/#/en/datex	https://www.tarktee.ee/#/en/datex	https://www.tarktee.ee/#/en/datex	https://www.tarktee.ee/#/en/datex
Finland	https://www.avoindata.fi/data/fi/dataset/rekkaparkit-tiella-e18	https://www.digitraffic.fi/	https://www.digitraffic.fi/	https://finap.fi/#/
France	https://www.bison-fute.gouv.fr/directive-sti,id_sous_rubrique10423,langen.html	https://www.bison-fute.gouv.fr/directive-sti,id_sous_rubrique10402,langen.html	https://www.bison-fute.gouv.fr/directive-sti,id_sous_rubrique10401,langen.html	https://transport.data.gouv.fr/
Germany	https://service.mdm-portal.de/	https://service.mdm-portal.de/	https://service.mdm-portal.de/	https://service.mdm-portal.de/
Greece	http://data.nap.gov.gr/	http://data.nap.gov.gr/	http://data.nap.gov.gr/	http://data.nap.gov.gr/
Hungary	https://napportal.kozut.hu/	https://napportal.kozut.hu/	https://napportal.kozut.hu/	https://napportal.kozut.hu/
Ireland	Not applicable	https://data.gov.ie/	https://data.gov.ie/	https://data.gov.ie/
Italy	www.cciss.it	www.cciss.it	www.cciss.it	www.cciss.it

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Country	Safe and Secure Truck Parking	Safety Related Traffic Information (SRTI)	Real Time Traffic Information (RTTI)	Multimodal Travel Information Services (MMTIS)
Latvia	https://lvceli.lv/en/road-network/statistical-data/transport-sector-open-data/ , (Road map) https://lvceli.lv/en/sakumlapa-english/#_stavvietas	https://lvceli.lv/en/road-network/statistical-data/transport-sector-open-data/ , (Road map) https://lvceli.lv/en/sakumlapa-english/#_stavvietas	https://lvceli.lv/en/road-network/statistical-data/transport-sector-open-data/ , (Road map) https://lvceli.lv/en/sakumlapa-english/#_stavvietas	https://lvceli.lv/en/road-network/statistical-data/transport-sector-open-data/ , (Road map) https://lvceli.lv/en/sakumlapa-english/#_stavvietas
Lithuania	Not applicable	https://maps.eismoinfo.lt	https://maps.eismoinfo.lt	https://maps.eismoinfo.lt
Luxembourg	https://data.public.lu/en/organizations/administration-des-ponts-et-chaussees/#datasets	https://data.public.lu/en/organizations/administration-des-ponts-et-chaussees/#datasets	https://data.public.lu/en/organizations/administration-des-ponts-et-chaussees/#datasets	https://data.public.lu/en/
Malta	Not applicable	https://geoservices.transport.gov.mt/egis	https://geoservices.transport.gov.mt/egis	https://geoservices.transport.gov.mt/egis
The Netherlands	https://nt.ndw.nu/#/home	https://nt.ndw.nu/#/home	https://nt.ndw.nu/#/home	https://nt.ndw.nu/#/home
Norway	Not applicable	https://transportportal.no/en/	https://transportportal.no/en/	https://transportportal.no/en/
Poland	https://kpd.gddkia.gov.pl/index.php/en/homepage/	https://kpd.gddkia.gov.pl/index.php/en/homepage/	https://kpd.gddkia.gov.pl/index.php/en/homepage/	https://dane.gov.pl/dataset/1739,krajowy-punkt-dostepowy-kpd-multimodalne-usugi-informacji-o-podrozach
Portugal	https://nap-portugal.imt-ip.pt/nap/	https://nap-portugal.imt-ip.pt/nap/	https://nap-portugal.imt-ip.pt/nap/	https://nap-portugal.imt-ip.pt/nap/
Romania	https://pna.cestrin.ro	https://pna.cestrin.ro	https://pna.cestrin.ro	https://pna.cestrin.ro
Slovakia	www.odoprave.info, (mobile application) https://www.ndsas.sk/i-love-dialnica/mobilna-aplikacia-1	www.odoprave.info, (mobile application) https://www.ndsas.sk/i-love-dialnica/mobilna-aplikacia-1	www.odoprave.info, (mobile application) https://www.ndsas.sk/i-love-dialnica/mobilna-aplikacia-1	www.odoprave.info, (mobile application) https://www.ndsas.sk/i-love-dialnica/mobilna-aplikacia-1
Slovenia	https://www.nap.si	https://www.nap.si	https://www.nap.si	https://www.nap.si
Spain	https://nap.dgt.es/ , https://www.mitma.es/	https://nap.dgt.es/, https://www.mitma.es/	https://nap.dgt.es/, https://www.mitma.es/	https://nap.dgt.es/, https://www.mitma.es/
Sweden	https://www.trafficdata.se/	https://www.trafficdata.se/	https://www.trafficdata.se/	https://www.trafficdata.se/

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Country	Safe and Secure Truck Parking	Safety Related Traffic Information (SRTI)	Real Time Traffic Information (RTTI)	Multimodal Travel Information Services (MMTIS)
Switzerland	Not applicable	Not applicable	https://opentransportdata.swiss/en/rt-road-traffic-counters/	https://opentransportdata.swiss/en/rt-road-traffic-counters/
United Kingdom	https://www.data.gov.uk/	https://www.data.gov.uk/	https://www.data.gov.uk/	https://www.data.gov.uk/

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National Bodies

Country	Safe and Secure Truck Parking	Safety Related Traffic Information (SRTI)	Real Time Traffic Information (RTTI)	Multimodal Travel Information Services (MMTIS)
Austria	AustriaTech GmbH	AustriaTech GmbH	AustriaTech GmbH	AustriaTech GmbH
Belgium	Unknown/currently not existing	Unknown/currently not existing	Unknown/currently not existing	Unknown/currently not existing
Bulgaria	Unknown/currently not existing	Unknown/currently not existing	Unknown/currently not existing	-
Croatia	-	-	-	-
Cyprus	Public Works Department, Ministry of Transport Communications and Works	Public Works Department, Ministry of Transport Communications and Works	Public Works Department, Ministry of Transport Communications and Works	Public Works Department, Ministry of Transport Communications and Works
Czech Republic	The Ministry of Transport of the Czech Republic	The Ministry of Transport of the Czech Republic	The Ministry of Transport of the Czech Republic	The Ministry of Transport of the Czech Republic
Denmark	Danish Road Directorate Legal division	Danish Road Directorate Legal division	Danish Road Directorate Legal division	Danish Road Directorate Legal division
Estonia	Estonian Ministry of Economic Affairs and Communications	Estonian Ministry of Economic Affairs and Communications	Estonian Ministry of Economic Affairs and Communications	Estonian Ministry of Economic Affairs and Communications
Finland	Finnish Transport and Communications Agency Traficom	Finnish Transport and Communications Agency Traficom	Finnish Transport and Communications Agency Traficom	Finnish Transport and Communications Agency Traficom
France	To be specified following internal reorganization	To be specified following internal reorganization	To be specified following internal reorganization	Autorité de régulation des transports
Germany	Federal Highway Research Institute (BASt)	Federal Highway Research Institute (BASt)	Federal Highway Research Institute (BASt)	Federal Highway Research Institute (BASt)
Greece	Road Toll Service - Ministry of Infrastructure and Transport	Road Toll Service - Ministry of Infrastructure and Transport	Road Toll Service - Ministry of Infrastructure and Transport	Road Toll Service - Ministry of Infrastructure and Transport
Hungary	Ministry for Innovation and Technology	Ministry for Innovation and Technology	Ministry for Innovation and Technology	-
Ireland	-	-	-	-
Italy	ART – Autorità di regolazione dei Trasporti	ART – Autorità di regolazione dei Trasporti	ART – Autorità di regolazione dei Trasporti	ART – Autorità di regolazione dei Trasporti
Latvia	Latvian State Roads, State owned LLC	Latvian State Roads, State owned LLC	Latvian State Roads, State owned LLC	Latvian State Roads, State owned LLC
Lithuania	State Enterprise Lithuanian Road Administration	State Enterprise Lithuanian Road Administration	State Enterprise Lithuanian Road Administration	State Enterprise Lithuanian Road Administration

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Luxembourg	Ministry of mobility and public works	Ministry of mobility and public works	Ministry of mobility and public works	Ministry of mobility and public works
Malta	Authority for Transport in Malta	Authority for Transport in Malta	Authority for Transport in Malta	Authority for Transport in Malta
The Netherlands	NDW (National Road Traffic Data Portal), RDW (Netherlands Vehicle Authority)	NDW (National Road Traffic Data Portal), RDW (Netherlands Vehicle Authority)	NDW (National Road Traffic Data Portal), RDW (Netherlands Vehicle Authority)	NDW (National Road Traffic Data Portal), RDW (Netherlands Vehicle Authority)
Norway	-	Road Supervisory Authority	Road Supervisory Authority	The Railway directorate
Poland	"Główny Inspektorat Transportu Drogowego" (eng. Chief Road Transport Inspectorate)	"Główny Inspektorat Transportu Drogowego" (eng. Chief Road Transport Inspectorate)	"Główny Inspektorat Transportu Drogowego" (eng. Chief Road Transport Inspectorate)	"Główny Inspektorat Transportu Drogowego" (eng. Chief Road Transport Inspectorate)
Portugal	At the moment, the activities foreseen for the NB are embedded in IMT's activities.	At the moment, the activities foreseen for the NB are embedded in IMT's activities.	At the moment, the activities foreseen for the NB are embedded in IMT's activities.	At the moment, the activities foreseen for the NB are embedded in IMT's activities.
Romania	Autoritatea Rutiera Romana	Autoritatea Rutiera Romana	Autoritatea Rutiera Romana	Autoritatea Rutiera Romana
Slovakia	Ministry of Transport and Construction of the Slovak Republic	Ministry of Transport and Construction of the Slovak Republic	Ministry of Transport and Construction of the Slovak Republic	-
Slovenia	-	-	-	-
Spain	General Directorate of Traffic	General Directorate of Traffic	General Directorate of Traffic	General Directorate of Traffic
Sweden	The Swedish Transport Agency (Transportstyrelsen)	The Swedish Transport Agency (Transportstyrelsen)	The Swedish Transport Agency (Transportstyrelsen)	The Swedish Transport Agency (Transportstyrelsen)
Switzerland	-	-	Federal Roads Office (FEDRO)	Federal Office of Transport (FOT)
United Kingdom	Department for Transport	Department for Transport	Department for Transport	Department for Transport

"-"= there is/will be no National Body (NB)

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Annex II – Implemented data standards for SSTP per country

	Static information about truck parking places					
Country	**Identification information of parking area (name and address of the truck parking area**	**Location information of the entry point in the parking area (latitude/longitude)**	**Primary road identifier1/direction and Primary Road identifier2/direction if same parking accessible from two different roads**	**If needed, the indication of the Exit to be taken / Distance from primary road km or miles**	**Total number of free parking places for trucks - Price and currency of parking places**	**Price and currency of parking places**
Austria	DATEX	DATEX	DATEX	DATEX	DATEX	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	DATEX	Not Applicable	DATEX	Not Applicable	DATEX	DATEX
Croatia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	DATEX	DATEX	DATEX	DATEX	DATEX	Not Applicable
Denmark	DATEX	DATEX	DATEX	Not Applicable	DATEX	Not Applicable
Estonia	DATEX	DATEX	DATEX	Other(s)	Other(s)	Other(s)
Finland	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
France	Other(s)	Other(s)	Not Applicable	Not Applicable	Other(s)	Other(s)
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	DATEX/Other(s)	Other(s)	DATEX/Other(s)	DATEX/Other(s)	DATEX/Other(s)	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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Luxembourg	DATEX	DATEX	Not Applicable	Not Applicable	DATEX	DATEX
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Poland	Other(s)	Other(s)	Other(s)	Not Applicable	Other(s)	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Slovakia	DATEX	DATEX	DATEX	Not Applicable	Not Applicable	DATEX
Slovenia	DATEX	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Information on safety conditions and equipment of truck parking places		
Country	**Description of security, safety and service equipment of the parking including national classification if one is applied**	**Number of parking places for refrigerated goods vehicles**	**Information on specific equipment or services for specific goods vehicles and other**
Austria	DATEX	DATEX	DATEX
Belgium	Not Applicable	Not Applicable	Not Applicable
Bulgaria	DATEX	DATEX	DATEX
Croatia	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable
Czech Republic	DATEX	DATEX	DATEX
Denmark	Not Applicable	Not Applicable	Not Applicable
Estonia	Other(s)	Other(s)	Other(s)
Finland	Other(s)	Other(s)	Other(s)
France	Not Applicable	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)
Hungary	DATEX	DATEX	DATEX
Ireland	Not Applicable	Not Applicable	Not Applicable
Italy	DATEX/Other(s)	DATEX/Other(s)	DATEX/Other(s)
Latvia	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable
Luxembourg	DATEX	DATEX	DATEX
Malta	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable
Norway	Not Applicable	Not Applicable	Not Applicable
Poland	Other(s)	Not Applicable	Other(s)
Portugal	Not Applicable	Not Applicable	Not Applicable
Romania	DATEX	DATEX	DATEX
Slovakia	DATEX	DATEX	DATEX
Slovenia	DATEX	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable

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	Contact information of truck parking operators			
Country	**Name and surname**	**Telephone number**	**E-mail address**	**Consent of the operator to make his contact information public**
Austria	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	DATEX	Not Applicable
Croatia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	Not Applicable	Not Applicable	DATEX	Not Applicable
Denmark	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Estonia	Other(s)	DATEX	DATEX	Other(s)
Finland	Other(s)	Other(s)	Other(s)	Other(s)
France	Other(s)	Other(s)	Not Applicable	Other(s)
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	DATEX	DATEX	DATEX	DATEX
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	Not Applicable	DATEX/Other(s)	DATEX/Other(s)	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	DATEX	DATEX	DATEX	Not Applicable
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	DATEX	DATEX	DATEX	DATEX
Slovakia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Slovenia	DATEX	DATEX	DATEX	DATEX
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Dynamic information about the availability of truck parking places		
Country	**Full**	**Closed**	**Number of free places which are available**
Austria	DATEX	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable
Croatia	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable
Czech Republic	Not Applicable	Not Applicable	Not Applicable
Denmark	DATEX	DATEX	DATEX
Estonia	Other(s)	Other(s)	Other(s)
Finland	Other(s)	Other(s)	Other(s)
France	Not Applicable	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)
Hungary	DATEX	Not Applicable	DATEX
Ireland	Not Applicable	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable
Luxembourg	DATEX	DATEX	DATEX
Malta	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable
Norway	Not Applicable	Not Applicable	Not Applicable
Poland	Not Applicable	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable
Romania	DATEX	DATEX	DATEX
Slovakia	Not Applicable	Not Applicable	Not Applicable
Slovenia	Not Applicable	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable

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	Linear location encoding					
Country	**Linear along linear element**	**TPEG linear location**	**Alert C linear**	**Open LR linear**	**GML line**	**Other(s)**
Austria	Yes	No	Yes	No	No	No
Belgium	No	No	No	No	No	No
Bulgaria	No	No	No	No	No	No
Croatia	No	No	No	No	No	No
Cyprus	No	No	No	No	No	No
Czech Republic	No	No	No	No	No	No
Denmark	No	No	No	No	No	No
Estonia	Yes	No	No	No	No	No
Finland	No	No	No	No	No	N/A
France	No	No	No	No	No	No
Germany	No	No	No	No	No	No
Greece	Yes	No	No	No	No	No
Hungary	Yes	No	No	Yes	No	No
Ireland	No	No	No	No	No	No
Italy	No	No	Yes	Yes	No	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	Yes	No	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	No	No	No	No	No	No
Poland	No	No	No	No	No	No
Portugal	No	No	No	No	No	No
Romania	Yes	No	No	No	No	No
Slovakia	No	No	No	No	No	No
Slovenia	Yes	No	Yes	Yes	No	No
Spain	No	No	No	No	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

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	Point location encoding					
Country	**Coordinates**	**Point along linear element**	**TPEG point**	**Alert C point**	**Open LR point**	**Other**
Austria	Yes	No	No	Yes	No	No
Belgium	No	No	No	No	No	No
Bulgaria	Yes	No	No	No	No	No
Croatia	No	No	No	No	No	No
Cyprus	No	No	No	No	No	No
Czech Republic	Yes	Yes	No	No	No	No
Denmark	Yes	No	No	No	No	No
Estonia	Yes	No	No	No	No	No
Finland	Yes	No	No	No	No	No
France	No	No	No	No	No	No
Germany	No	No	No	No	No	No
Greece	Yes	No	No	No	No	No
Hungary	Yes	Yes	No	No	Yes	No
Ireland	No	No	No	No	No	No
Italy	Yes	No	No	Yes	Yes	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	No	Yes	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	No	No	No	No	No	No
Poland	No	No	No	No	Yes	No
Portugal	No	No	No	No	No	No
Romania	No	Yes	No	No	No	No
Slovakia	No	No	No	No	No	No
Slovenia	No	Yes	No	Yes	Yes	No
Spain	No	No	No	No	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

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Annex III – Implemented data standards for SRTI per country

	Safety-related traffic information							
Country	**Temporary slippery road**	**Animal, people, obstacles, debris on the road**	**Unprotected accident area**	**Short-term road works**	**Reduced visibility**	**Wrong-way driver**	**Unmanaged blockage of a road**	**Exceptional weather conditions**
Austria	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	DATEX	DATEX	DATEX	DATEX	DATEX	Not Applicable	Not Applicable	DATEX
Croatia	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	DATEX & OTHERS (DDR & XML)	DATEX & OTHERS (DDR & XML)	DATEX & OTHERS (DDR & XML)	DATEX & OTHERS (DDR & XML)	DATEX & OTHERS (DDR & XML)	DATEX & OTHERS (DDR & XML)	DATEX & OTHERS (DDR & XML)	DATEX & OTHERS (DDR & XML)
Denmark	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Estonia	DATEX	DATEX	Other(s)	DATEX	DATEX	Other(s)	Other(s)	DATEX
Finland	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)
France	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Hungary	DATEX	DATEX	DATEX	DATEX	Not Applicable	Not Applicable	DATEX	DATEX
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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Italy	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	Not Applicable	DATEX	DATEX	DATEX	Not Applicable	Not Applicable	DATEX	Not Applicable
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Poland	DATEX & OTHERS (OSM map)	DATEX & OTHERS (OSM map)	DATEX & OTHERS (OSM map)	DATEX & OTHERS (OSM map)	DATEX & OTHERS (OSM map)	DATEX & OTHERS (OSM map)	DATEX & OTHERS (OSM map)	DATEX & OTHERS (OSM map)
Portugal	Not Applicable	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Slovakia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Slovenia	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Spain	Yes	Yes	Yes	Yes	Yes	Not Applicable	Yes	Yes
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Point location encoding					
Country	**Coordinates**	**Point along linear element**	**TPEG point**	**Alert C point**	**Open LR point**	**Other**
Austria	No	No	No	Yes	No	No
Belgium	No	No	No	No	No	No
Bulgaria	Yes	No	No	No	No	No
Croatia	Yes	Yes	No	Yes	Yes	No
Cyprus	No	No	No	No	No	No
Czech Republic	Yes	Yes	No	Yes	Yes	No
Denmark	Yes	No	No	Yes	Yes	No
Estonia	Yes	No	No	No	No	No
Finland	No	No	No	Yes	No	GeoJSON
France	Yes	Yes	No	No	No	No
Germany	No	No	No	No	No	No
Greece	Yes	No	No	No	No	No
Hungary	Yes	Yes	No	No	Yes	No
Ireland	No	No	No	No	No	No
Italy	Yes	No	No	Yes	Yes	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	No	Yes	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	Yes	No	No	No	No	No
Poland	No	No	No	No	Yes	No
Portugal	No	No	No	No	No	No
Romania	No	Yes	No	No	No	No
Slovakia	No	No	No	Yes	No	No
Slovenia	Yes	Yes	No	Yes	Yes	No
Spain	Yes	Yes	Yes	Yes	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

Linear location encoding

This project has received funding from the European Commission's Directorate General for Transport and Mobility under Grant Agreement no. MOVE/B4/SUB/2020-123/SI2.8522

Country	Linear along linear element	TPEG linear location	Alert C linear	Open LR linear	GML line	Other(s)
Austria	Yes	No	Yes	No	No	No
Belgium	No	No	No	No	No	No
Bulgaria	No	No	No	No	No	No
Croatia	Yes	No	Yes	Yes	No	No
Cyprus	No	No	No	No	No	No
Czech Republic	Yes	No	Yes	Yes	No	Yes (extension for predefined road map and S-JTSK coordinate system)
Denmark	No	No	Yes	Yes	Yes	No
Estonia	Yes	No	No	No	No	No
Finland	No	No	Yes	No	No	Yes (GeoJSON)
France	No	No	No	No	No	No
Germany	No	No	No	No	No	No
Greece	Yes	No	No	No	No	No
Hungary	Yes	No	No	Yes	No	No
Ireland	No	No	No	No	No	No
Italy	No	No	Yes	Yes	No	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	Yes	No	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	No	No	No	No	Yes	No
Poland	No	No	No	No	No	No
Portugal	No	No	No	No	No	No
Romania	Yes	No	No	No	No	No
Slovakia	No	No	Yes	No	No	No
Slovenia	Yes	No	Yes	Yes	No	No
Spain	Yes	Yes	Yes	No	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

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Annex IV – Implemented data standards for RTTI per country

	Types of static road data (continued in the next page)								
Country	**Geometry**	**Road width**	**Number of lanes**	**Gradients**	**Junctions**	**Road classification**	**Access conditions for tunnels**	**Access conditions for bridges**	**Permanent access restrictions**
Austria	Not Applicable	Not Applicable	DATEX	Not Applicable	Not Applicable	Not Applicable	DATEX	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	WMS/WFS &Other(s): ALERT-C	Not Applicable	Not Applicable	Other(s): GeoJSON, SHP, at NAP only for Brno metropolitan area	Other(s): ALERT-C	Other(s): ALERT-C	Not Applicable	Not Applicable	Not Applicable
Denmark	WMS/WFS	WMS/WFS	Not Applicable	Not Applicable	WMS/WFS	WMS/WFS	DATEX	DATEX	DATEX
Estonia	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	DATEX, WMS/WFS	DATEX, WMS/WFS
Finland	WMS/WFS	WMS/WFS	WMS/WFS	Other(s)	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS,ROSATTE

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France	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	DATEX, WMS/WFS, Others	WMS/ WFS, Others	WMS/ WFS	WMS/ WFS	WMS/ WFS	WMS/ WFS, Others	WMS/ WFS, Others	WMS/ WFS, Others	Other(s)
Ireland	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Italy	WMS/WFS, Others	WMS/WFS, Others	Not Applicable	Not Applicable	Not Applicable	WMS/WFS, Others	Not Applicable	Not Applicable	WMS/WFS, Others
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	WMS/ WFS	WMS/ WFS	WMS/ WFS	WMS/ WFS	WMS/ WFS	WMS/ WFS	WMS/ WFS	WMS/ WFS	WMS/ WFS
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	Other(s): Elveg	Other(s): NVDB	Other(s): Elveg, NVDB	Other(s): NVDB	Other(s): NVDB	Other(s): Elveg, NVDB	Other(s): Elveg, NVDB	Other(s): Elveg, NVDB	Other(s): Elveg, NVDB
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Other(s): osm map	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Slovakia	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Slovenia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Other(s): Location table	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

	Types of static road data										
Country	**Other traffic regulations**	**Speed limits**	**Traffic circulation plans**	**Freight delivery regulations**	**Location of tolling stations**	**Identification of tolled roads, applicable fixed road user charges and available payment methods**	**Location of parking places and service areas**	**Location of charging points for electric vehicles and the conditions for their use**	**Location of compressed natural gas, liquefied natural gas, liquefied petroleum gas stations**	**Location of public transport stops and interchange points**	**Location of delivery areas**
Austria	Not Applicable	DATEX	Not Applicable	Not Applicable	DATEX	Not Applicable	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Other(s): ALERT-C	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Denmark	DATEX	WMS/WFS	Not Applicable	Not Applicable	Not Applicable	Not Applicable	WMS/WFS	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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Estonia	Other(s)	WMS/WFS	Other(s)	Other(s)	Other(s)	Other(s)	DATEX, WMS/WFS	Other(s)	Other(s)	DATEX, Other(s)	Other(s)
Finland	WMS/WFS,ROSATTE	WMS/WFS ,ROSATTE	WMS/WFS	WMS/WFS	Other(s)	Other(s)	WMS/WFS	Other(s)	Other(s)	WMS/WFS	Other(s)
France	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	Others	WMS/ WFS, Others	Not Applicable	WMS/ WFS, Others	WMS/ WFS, Others	WMS/ WFS, Others	DATEX, Others	DATEX	DATEX	WMS/ WFS, Others	WMS/ WFS, Others
Ireland	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Other(s)	Unknown	Unknown	Other(s)	Unknown
Italy	Not Applicable	Not Applicable	Not Applicable	Not Applicable	DATEX	Not Applicable	DATEX, Others	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	WMS/WFS	WMS/WFS	WMS/WFS	Not Applicable	Not Applicable	Not Applicable	DATEX, WMS/WFS	WMS/WFS	Not Applicable	WMS/WFS	Not Applicable
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	Other(s): Elveg, NVDB	Other(s): Elveg, NVDB	Not Applicable	Not Applicable	Other(s): NVDB	Other(s): NVDB	Other(s): NVDB	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Other(s): osm map	Not Applicable	Other(s): osm map	Other(s): osm map	Other(s): osm map	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX

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Slovakia	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Slovenia	ROSATTE	ROSATTE	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	DATEX	Not Applicable	Other(s): GTFS, Open API	Not Applicable
Spain	Not Applicable	ROSATTE	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Types of dynamic road status data (continued in the next page)							
Country	**Road closures**	**Lane closures**	**Bridge closures**	**Overtaking bans on heavy goods vehicles**	**Roadworks**	**Accidents and incidents**	**Dynamic speed limits**	**Direction of travel on reversible lanes**
Austria	DATEX	DATEX	DATEX	Not Applicable	DATEX	DATEX	DATEX	DATEX
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	DATEX	DATEX	Not Applicable	Not Applicable	DATEX	DATEX	Not Applicable	Not Applicable
Croatia	DATEX	DATEX	DATEX	Not Applicable	DATEX	DATEX	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	DATEX & Other(s): DDR & XML	DATEX & Other(s): DDR & XML	DATEX & Other(s): DDR & XML	Not Applicable	DATEX & Other(s): DDR & XML	DATEX & Other(s): DDR & XML	Not Applicable	Not Applicable
Denmark	DATEX	DATEX	DATEX	Not Applicable	DATEX	DATEX	DATEX	Not Applicable
Estonia	DATEX	Other(s)	DATEX	Other(s)	DATEX	DATEX	Other(s)	Other(s)
Finland	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)
France	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	DATEX	DATEX	Not Applicable	Not Applicable	DATEX	DATEX	DATEX	DATEX
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	DATEX	DATEX	DATEX	Not Applicable	DATEX	DATEX	Not Applicable	DATEX
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	DATEX	DATEX	DATEX	Not Applicable	DATEX	DATEX	Not Applicable	Not Applicable
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	Not Applicable	Not Applicable
Poland	DATEX & Other(s): OSM map	DATEX & Other(s): OSM map	Not Applicable	Not Applicable	DATEX & Other(s): OSM map	DATEX & Other(s): OSM map	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	DATEX	Not Applicable	Not Applicable	Not Applicable

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Romania	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	Not Applicable	DATEX
Slovakia	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	Not Applicable	DATEX
Slovenia	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	Not Applicable	DATEX
Spain	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	Not Applicable	DATEX
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

	Types of dynamic road status data							
Country	**Poor road conditions**	**Temporary traffic management measures**	**Variable road user charges and available payment methods**	**Availability of parking places**	**Availability of delivery areas**	**Cost of parking**	**Availability of charging points for electric vehicles**	**Weather conditions affecting road surface and visibility**
Austria	DATEX	DATEX	Not Applicable	DATEX	Not Applicable	Not Applicable	Not Applicable	DATEX
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	DATEX	DATEX	Not Applicable	Not Applicable	Not Applicable	DATEX	Not Applicable	DATEX
Croatia	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	DATEX
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	DATEX & Other(s): DDR & XML	DATEX & Other(s): DDR & XML	Not Applicable	Other(s): DDR & XML	Not Applicable	Not Applicable	Not Applicable	DATEX & Other(s): DDR & XML
Denmark	DATEX	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	DATEX
Estonia	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	DATEX
Finland	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)	DATEX,Other(s)
France	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	DATEX	DATEX	Not Applicable	DATEX	Not Applicable	Not Applicable	Not Applicable	DATEX
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	DATEX	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	DATEX
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	DATEX	DATEX	Not Applicable	DATEX	DATEX	DATEX	Not Applicable	Not Applicable
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	DATEX	DATEX	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Poland	DATEX & Other(s): OSM map	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	DATEX & Other(s): OSM map	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX	DATEX
Slovakia	DATEX	DATEX	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Slovenia	DATEX&Other(s)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	DATEX&Other(s)	DATEX&Other(s)
Spain	DATEX	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	DATEX
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

This project has received funding from the European Commission's Directorate General for Transport and Mobility under Grant Agreement no. MOVE/B4/SUB/2020-123/SI2.8522

	Types of traffic data				
Country	**Traffic volume**	**Speed**	**Location and length of traffic queues**	**Travel times**	**Waiting time at border crossings to non-EU Member States**
Austria	Not Applicable	Not Applicable	DATEX	DATEX	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	DATEX	DATEX	DATEX	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	DATEX & Other(s): DDR & XML	DATEX & Other(s): DDR & XML	DATEX & Other(s): DDR & XML	DATEX & Other(s): DDR & XML	Not Applicable
Denmark	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Estonia	DATEX	Other(s)	Other(s)	Other(s)	DATEX
Finland	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
France	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	Not Applicable	Not Applicable	DATEX	Not Applicable	Not Applicable
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable	DATEX	Other(s)	DATEX
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	DATEX	Not Applicable	Not Applicable	DATEX	Not Applicable
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Portugal	DATEX	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	DATEX	DATEX	DATEX	DATEX	DATEX
Slovakia	DATEX	Not Applicable	DATEX	DATEX	DATEX
Slovenia	DATEX II, JSON, XML	DATEX II, JSON, XML	DATEX&GeoJSON, JSON, RSS, GeoRSS	OTHER	DATEX&GeoJSON, JSON, RSS, GeoRSS
Spain	DATEX	DATEX	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Point location encoding					
Country	**Coordinates**	**Point along linear element**	**TPEG point**	**Alert C point**	**Open LR point**	**Other**
Austria	No	No	No	Yes	No	No
Belgium	No	No	No	No	No	No
Bulgaria	Yes	No	No	No	No	No
Croatia	Yes	Yes	No	Yes	Yes	No
Cyprus	No	No	No	No	No	No
Czech Republic	Yes	Yes	No	Yes	Yes	No
Denmark	Yes	No	No	Yes	Yes	No
Estonia	Yes	No	No	No	No	No
Finland	No	No	No	Yes	No	GeoJSON
France	Yes	Yes	No	No	No	No
Germany	No	No	No	No	No	No
Greece	Yes	No	No	No	No	No
Hungary	Yes	Yes	No	No	Yes	No
Ireland	No	No	No	No	No	No
Italy	Yes	No	No	Yes	Yes	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	No	Yes	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	Yes	No	No	No	No	No
Poland	No	No	No	No	Yes	No
Portugal	No	No	No	No	No	No
Romania	No	Yes	No	No	No	No
Slovakia	No	No	No	Yes	No	No
Slovenia	Yes	Yes	No	Yes	Yes	No
Spain	Yes	Yes	Yes	Yes	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

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	Linear location encoding					
Country	**Linear along linear element**	**TPEG linear location**	**Alert C linear**	**Open LR linear**	**GML line**	**Other(s):**
Austria	Yes	No	Yes	No	No	No
Belgium	No	No	No	No	No	No
Bulgaria	No	No	No	No	No	No
Croatia	Yes	No	Yes	Yes	No	No
Cyprus	No	No	No	No	No	No
Czech Republic	Yes	No	Yes	Yes	No	exstension for predefined road map and S-JTSK coordinate system
Denmark	No	No	Yes	Yes	Yes	No
Estonia	Yes	No	No	No	No	No
Finland	No	No	Yes	No	No	GeoJSON
France	No	No	No	No	No	No
Germany	No	No	No	No	No	No
Greece	Yes	No	No	No	No	No
Hungary	Yes	No	No	Yes	No	No
Ireland	No	No	No	No	No	No
Italy	No	No	Yes	Yes	No	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	Yes	No	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	No	No	No	No	Yes	No
Poland	No	No	No	No	No	No
Portugal	No	No	No	No	No	No
Romania	Yes	No	No	No	No	No
Slovakia	No	No	Yes	No	No	No
Slovenia	Yes	No	Yes	Yes	No	No
Spain	Yes	Yes	Yes	No	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

This project has received funding from the European Commission's Directorate General for Transport and Mobility under Grant Agreement no. MOVE/B4/SUB/2020-123/SI2.8522

	Area location enconding					
Country	**Alert C area**	**TPEG Area**	**Named Area**	**Open LR area**	**GML multipolygon**	**Other(s):**
Austria	No	No	No	No	No	No
Belgium	No	No	No	No	No	No
Bulgaria	No	No	No	No	No	No
Croatia	No	No	No	No	No	No
Cyprus	No	No	No	No	No	No
Czech Republic	No	No	No	No	No	No
Denmark	No	No	No	No	Yes	No
Estonia	No	No	No	No	No	no area
Finland	Yes	No	No	No	No	GeoJSON
France	No	No	No	No	No	No
Germany	No	No	No	No	No	No
Greece	No	No	Yes	No	No	No
Hungary	No	No	No	No	No	No
Ireland	No	No	No	No	No	No
Italy	Yes	No	No	Yes	No	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	No	No	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	No	No	No	No	No	No
Poland	No	No	No	No	No	No
Portugal	No	No	No	No	No	No
Romania	Yes	No	No	No	No	No
Slovakia	Yes	No	No	No	No	No
Slovenia	Yes	No	No	Yes	No	No
Spain	No	No	No	No	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

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Annex V – Implemented data standards for MMTIS per country

	Standards for "location search" category									
Country	**Address identifiers**	**Topographic places**	**Points of interest**	**Access Nodes: Identified access nodes**	**Access Nodes: Geometry/map layout structure of access nodes**	**Park & Ride stops**	**Bike sharing stations**	**Car-sharing stations**	**Publicly accessible refuelling stations for petrol, diesel, CNG/LNG, hydrogen powered vehicles, charging stations for electric vehicles**	**Secure bike parking**
Austria	Not Applicable	NeTex, Other(s)	Not Applicable	NeTex, Other(s)	NeTex, Other(s)	Not Applicable	Other(s)	Other(s)	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	Other(s)	Other(s)	Other(s)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	Not Applicable	Not Applicable	Not Applicable	Other: JDF	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Denmark	Other: INSPIRE	Other: INSPIRE	Other: INSPIRE	Other: GTFS	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Estonia	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Finland	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
France	Other(s): CSV	Not Applicable	Other(s): CSV	Other(s): GeoJSON	Other(s): GeoJSON	Other(s): CSV	Other(s): GBFS	Not Applicable	Other(s): CSV	Other(s): CSV
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)

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Hungary	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS	WMS/WFS
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	NeTex, Other(s): OSM	NeTex, Other(s): OSM	NeTex, Other(s): OSM	NeTex	NeTex	NeTex	NeTex	NeTex	Other(s)	NeTex
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Slovakia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Slovenia	OpenAPI	Unknown	OpenAPI	Unknown	Unknown	Unknown	Unknown	Unknown	DATEX	Unknown
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Standards for "Detailed common standard and special fare query" category			
Country	**Passenger classes**	**Common fare products**	**Special Fare Products**	**Basic commercial conditions**
Austria	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	Other: JDF	Not Applicable	Not Applicable	Not Applicable
Denmark	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Estonia	Other(s)	Other(s)	Other(s)	Other(s)
Finland	Other(s)	NeTEx,Other(s)	Other(s)	Other(s)
France	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ireland	Other(s)	Other(s)	Other(s)	Other(s)
Italy	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	NeTex	NeTex	NeTex	NeTex
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	NeTex	NeTex	NeTex	NeTex
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	Other(s)	Other(s)	Other(s)	Other(s)
Slovakia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Slovenia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Standards for "Information service" category			
Country	Where and how to buy tickets for scheduled modes, demand responsive modes and car parking	How to pay tolls	How to book car sharing, taxis, cycle hire etc	Where how to pay for car parking, public charging stations for electric vehicles and refuelling points for CNG/LNG, hydrogen, petrol and diesel powered vehicles
Austria	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Denmark	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Estonia	Other(s)	Other(s)	Other(s)	Other(s)
Finland	Other(s)	Other(s)	Other(s)	Other(s)
France	Not Applicable	Not Applicable	Other(s): GBFS	Other(s): CSV
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	NeTex	Not Applicable	Other(s): GBFS	Not Applicable
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	Other(s)	Other(s)	Other(s)	Other(s)
Slovakia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Slovenia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Standards for "Trip plans" category			
Country	**Operational Calendar, mapping day types to calendar dates**	**Detailed cycle network attributes**	**Parameters needed to calculate an environmental factor**	**Parameters such as fuel consumption needed to calculate cost**
Austria	NeTex	Not Applicable	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	NeTex	Other	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	Other(s): PDF	Not Applicable	Not Applicable	Not Applicable
Denmark	Other: GTFS	Not Applicable	Not Applicable	Not Applicable
Estonia	Other(s)	Other(s)	Other(s)	Other(s)
Finland	NeTEx,Other(s)	Other(s)	Other(s)	Other(s)
France	NeTex,Other(s): GTFS	Other(s): CSV	Other(s): CSV	Other(s): CSV
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	NeTEx	NeTEx	Not Applicable	Not Applicable
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	NeTex	Other(s): OSM, NVDB	Not Applicable	Not Applicable
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	Other(s)	Other(s)	Other(s)	Other(s)
Slovakia	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Slovenia	Other(s): GTFS	Not Applicable	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Standards for “Trip plans, auxiliary information, availability check” category	
Country	**Basic common standard fares**	**Vehicle facilities**
Austria	Other(s)	Not Applicable
Belgium	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable
Croatia	Not Applicable	NETEX
Cyprus	Not Applicable	Not Applicable
Czech Republic	Not Applicable	Not Applicable
Denmark	Not Applicable	Not Applicable
Estonia	Other(s)	Other(s)
Finland	Other(s)	Other(s)
France	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)
Hungary	Not Applicable	Not Applicable
Ireland	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable
Luxembourg	Not Applicable	Not Applicable
Malta	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable
Norway	NeTex, Other(s): NRP	NeTex
Poland	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable
Romania	Other(s)	Other(s)
Slovakia	Not Applicable	Not Applicable
Slovenia	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable

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	Standards for "Trip plan computation - scheduled modes transport and road transport" category					
Country	**Connection links where interchanges may be made, default transfer times between modes at interchanges**	**Network topology and routes/lines**	**Transport operators**	**Timetables**	**Planned interchanges between guaranteed scheduled services**	**Hours of operation**
Austria	NeTex	NeTex, Other(s)	NeTex, Other(s)	NeTex, Other(s)	NeTex, Other(s)	NeTex, Other(s)
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	NETEX	NETEX	NETEX	NETEX	Not Applicable	NETEX
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	Not Applicable	Not Applicable	Other(s): JDF	Other(s): JDF	Not Applicable	Not Applicable
Denmark	Other: GTFS	Other: GTFS	Other: GTFS	Other: GTFS	Other: N/A	Not Applicable
Estonia	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Finland	NeTEx,Other(s)	NeTEx,Other(s)	NeTEx,Other(s)	NeTEx,Other(s)	NeTEx,Other(s)	NeTEx,Other(s)
France	NeTex,Other(s): GTFS	NeTex,Other(s): GTFS	NeTex,Other(s): GTFS	NeTex,Other(s): GTFS	NeTex,Other(s): GTFS	NeTex,Other(s): GTFS
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ireland	Not Applicable	NeTex, Other(s): GTFS	NeTex, Other(s): GTFS	NeTex, Other(s): GTFS	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	NETEX	NETEX	NETEX	NETEX	NETEX	NETEX
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	Other(s): OSM	NeTex	NeTex	NeTex	NeTex	NeTex
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Slovakia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Slovenia	Others: GTFS, OpenAPI, IJPP (integrated public passenger transport system)	Others: GTFS, OpenAPI, IJPP (integrated public passenger transport system)	Others: GTFS, OpenAPI, IJPP (integrated public passenger transport system)	Others: GTFS, OpenAPI, IJPP (integrated public passenger transport system)	Others: GTFS, OpenAPI, IJPP (integrated public passenger transport system)	Not Applicable
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Standards for "Trip plan computation - scheduled modes transport and road transport" category							
Country	**Stop facilities access nodes**	**Vehicles (low floor; wheelchair accessible.)**	**Accessibility of access nodes, and paths within an interchange**	**Existence of assistance services**	**Road network**	**Cycle network**	**Pedestrian network and accessibility facilities**	**Estimated travel times by day type and time-band by transport mode/combination of transport modes**
Austria	Other(s)	NeTex	NeTex, Other(s)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	NETEX	NETEX	Not Applicable	Not Applicable	Other	Other	Other	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	Other(s):JDF	Other(s):JDF	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Denmark	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Estonia	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Finland	NeTEx,Other(s)	NeTEx,Other(s)	NeTEx,Other(s)	NeTEx,Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
France	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Other(s): CSV	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	NETEX	Not Applicable	Not Applicable	Not Applicable	NETEX	NETEX	NETEX	NETEX
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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Norway	Other(s): OSM	NeTex, Other (s): OSM	Other(s): OSM	Other(s): HTML	Other(s): OSM, Elveg, NVDB	Other(s): OSM, Elveg, NVDB	Other(s): OSM, Elveg, NVDB	NeTex
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Slovakia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Slovenia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Other(s): GTFS
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Standards for "Dynamic passing times, trip plans and auxiliary information" category						
Country	**Disruptions (all modes)**	**Real-time status information**	**Status of access node features**	**Estimated departure and arrival times of services**	**Current road link travel times**	**Cycling network closures/diversions**	**Future predicted road link travel times**
Austria	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Croatia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Czech Republic	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Denmark	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Estonia	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Finland	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
France	Other(s): GTFS-RT	Other(s): GTFS-RT	Not Applicable	Other(s): GTFS-RT	Not Applicable	Not Applicable	Not Applicable
Germany	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)
Hungary	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ireland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Luxembourg	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Malta	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Norway	DATEX, SIRI	DATEX, SIRI	SIRI	SIRI	DATEX	Not Applicable	Not Applicable
Poland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Romania	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)	Other(s)

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Slovakia	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Slovenia	Not Applicable	SIRI	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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	Standards for "Dynamic information service" category
Country	**Availability of publicly accessible charging stations and refuelling points**
Austria	Not Applicable
Belgium	Not Applicable
Bulgaria	Not Applicable
Croatia	Not Applicable
Cyprus	Not Applicable
Czech Republic	Not Applicable
Denmark	Not Applicable
Estonia	Other(s)
Finland	Other(s)
France	Not Applicable
Germany	Not Applicable
Greece	Other(s)
Hungary	Not Applicable
Ireland	Not Applicable
Italy	Not Applicable
Latvia	Not Applicable
Lithuania	Not Applicable
Luxembourg	Not Applicable
Malta	Not Applicable
Netherlands	Not Applicable
Norway	Not Applicable
Poland	Not Applicable
Portugal	Not Applicable
Romania	DATEX + Other(s)
Slovakia	Not Applicable
Slovenia	DATEX
Spain	Not Applicable
Sweden	Not Applicable
Switzerland	Not Applicable
United Kingdom	Not Applicable

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Country	Standards for "Dynamic availability ckeck" category	
	Car-sharing availability, bike sharing availability	Car parking spaces available, parking tariffs, road toll tariffs
Austria	Not Applicable	Not Applicable
Belgium	Not Applicable	Not Applicable
Bulgaria	Not Applicable	Not Applicable
Croatia	Not Applicable	Not Applicable
Cyprus	Not Applicable	Not Applicable
Czech Republic	Not Applicable	Not Applicable
Denmark	Not Applicable	Not Applicable
Estonia	Other(s)	Other(s)
Finland	Other(s)	Other(s)
France	Other(s): GBFS	Not Applicable
Germany	Not Applicable	Not Applicable
Greece	Other(s)	Other(s)
Hungary	Not Applicable	Not Applicable
Ireland	Not Applicable	Not Applicable
Italy	Not Applicable	Not Applicable
Latvia	Not Applicable	Not Applicable
Lithuania	Not Applicable	Not Applicable
Luxembourg	Not Applicable	Not Applicable
Malta	Not Applicable	Not Applicable
Netherlands	Not Applicable	Not Applicable
Norway	Other(s): GBFS	Other(s): NVDB (road toll)
Poland	Not Applicable	Not Applicable
Portugal	Not Applicable	Not Applicable
Romania	Other(s)	DATEX + Other(s)
Slovakia	Not Applicable	Not Applicable
Slovenia	Not Applicable	Not Applicable
Spain	Not Applicable	Not Applicable
Sweden	Not Applicable	Not Applicable
Switzerland	Not Applicable	Not Applicable
United Kingdom	Not Applicable	Not Applicable

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	Point location enconding					
Country	**Coordinates**	**Point along linear element**	**TPEG point**	**Alert C point**	**Open LR point**	**Other**
Austria	No	No	No	No	No	No
Belgium	No	No	No	No	No	No
Bulgaria	No	No	No	No	No	No
Croatia	No	No	No	No	No	No
Cyprus	No	No	No	No	No	No
Czech Republic	No	No	No	No	No	Yes (coordinates in S-JTSK coordinate system)
Denmark	No	No	No	No	No	No
Estonia	Yes	No	No	No	No	No
Finland	Yes	No	No	No	No	GeoJSON
France	No	No	No	No	No	No
Germany	No	No	No	No	No	No
Greece	Yes	No	No	No	No	No
Hungary	No	No	No	No	No	No
Ireland	No	No	No	No	No	GeoJSON
Italy	No	No	No	No	No	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	No	No	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	Yes	Yes	No	No	No	No
Poland	No	No	No	No	No	No
Portugal	No	No	No	No	No	No
Romania	No	Yes	No	No	No	No
Slovakia	No	No	No	No	No	No
Slovenia	Yes	Yes	No	Yes	Yes	No
Spain	No	No	No	No	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

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	Linear location enconding					
Country	**Linear along linear element**	**TPEG linear location**	**Alert C linear**	**Open LR linear**	**GML line**	**Other(s):**
Austria	No	No	No	No	No	No
Belgium	No	No	No	No	No	No
Bulgaria	No	No	No	No	No	No
Croatia	No	No	No	No	No	No
Cyprus	No	No	No	No	No	No
Czech Republic	No	No	No	No	No	No
Denmark	No	No	No	No	No	No
Estonia	Yes	No	No	No	No	No
Finland	No	No	No	No	Yes	GeoJSON
France	No	No	No	No	No	No
Germany	No	No	No	No	No	No
Greece	Yes	No	No	No	No	No
Hungary	No	No	No	No	No	No
Ireland	No	No	No	No	No	No
Italy	No	No	No	No	No	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	No	No	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	Yes	No	No	No	Yes	No
Poland	No	No	No	No	No	No
Portugal	No	No	No	No	No	No
Romania	Yes	No	No	No	No	No
Slovakia	No	No	No	No	No	No
Slovenia	Yes	No	Yes	Yes	No	No
Spain	No	No	No	No	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

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	Area location enconding					
Country	**Alert C area**	**TPEG Area**	**Named Area**	**Open LR area**	**GML multipolygon**	**Other(s):**
Austria	No	No	No	No	No	No
Belgium	No	No	No	No	No	No
Bulgaria	No	No	No	No	No	No
Croatia	No	No	No	No	No	No
Cyprus	No	No	No	No	No	No
Czech Republic	No	No	No	No	No	No
Denmark	No	No	No	No	No	No
Estonia	No	No	No	No	No	No
Finland	No	No	No	No	Yes	GeoJSON
France	No	No	No	No	No	No
Germany	No	No	No	No	No	No
Greece	No	No	Yes	No	No	No
Hungary	No	No	No	No	No	No
Ireland	No	No	No	No	Yes	GeoJSON
Italy	No	No	No	No	No	No
Latvia	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No
Luxembourg	No	No	No	No	No	No
Malta	No	No	No	No	No	No
Netherlands	No	No	No	No	No	No
Norway	No	No	No	No	Yes	No
Poland	No	No	No	No	No	No
Portugal	No	No	No	No	No	No
Romania	Yes	No	No	No	No	No
Slovakia	No	No	No	No	No	No
Slovenia	Yes	No	No	Yes	No	No
Spain	No	No	No	No	No	No
Sweden	No	No	No	No	No	No
Switzerland	No	No	No	No	No	No
United Kingdom	No	No	No	No	No	No

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