KpVV CROW

Real Time Traffic Information

A clarification of the new RTTI Delegated Regulation for road operators

CROW-KpVV

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Introduction

Road managers are holders of certain types of data. The Real Time Traffic Information (RTTI) Delegated Regulation focuses, inter alia, on those data holders and therefore affects road operators. However, these consequences are not only on the effort side. On the contrary: providing real time, qualitative data can also support policy and is an important tool in achieving policy goals.
Data can, among other things, provide information to the road user without the need for a physical information panel (VMS), good data on maximum speeds can support user acceptance of the Intelligent Speed Assistant (ISA) which can increase road safety.

With RTTI, the EU prescribes several aspects about the accessibility of traffic data:

- These data should in principle be made publicly accessible.
- These data should in principle be offered in real time (without undue delay, as soon as possible).
- These data must be machine-readable.
- If a road manager does not have these data, he is not obliged to collect them.
- If the data is accessible and of sufficient quality, third parties are obliged to use these data for their services.
- The RTTI revision will be phased in between 2023 and 2027 with an extension of data types and geographical scope (to all roads where motorised traffic is permitted). Importantly, the key data types should be accessible for the whole network as early as 2025.

The Netherlands is actively working on the implementation of their own Dutch Data Top 15 data types and the National Mobility Data Access Point. Through Regional Data Teams and the National Datachain Consultation, the Road Administrators agree on the data that should be delivered. It is interesting for road managers to ensure that their own data is properly provided:

- It helps to redirect traffic, for example in residential areas and around schools. To do so, a road manager needs to take fewer measures on the street.
- It avoids problems with third parties wishing to use the data in terms of preventing errors, omissions or inaccuracies in the data.
- It provides information on the use and effectiveness of its own traffic network so that policies and the planning of maintenance works can be better coordinated.

1 Relevant EU legislation in a nutshell

When examining the European Commission's Delegated Act on Real Time Traffic Information, it is important to briefly take note of some concepts relating to EU legislation.

1.1 EU Directives

A European Union (EU) Directive is a legal act of the European Union which obliges Member States to achieve a certain result without prescribing the means to achieve that result. Directives must first be transposed by the Member States before their laws apply to persons residing in their country. Directives normally leave a certain margin of discretion to Member States as to the exact rules to be adopted.

Directives can be adopted through different legislative procedures depending on their subject matter. Directives are adopted by the Council and the European Parliament (or only by the Council, to which the Parliament must then give its assent or at least be consulted).

1.2 Delegated Acts

Under Article 290 of the Treaty on the Functioning of the European Union (TFEU), the EU legislator (in general, the European Parliament and the Council may delegate to the Commission the power to adopt non-legislative acts of general application supplementing or amending certain non-essential elements of a legislative act.

Delegated acts may, for example, add new (non-essential) rules or involve a subsequent amendment of certain aspects of a legislative act. The legislator can thus focus on policy direction and objectives without engaging in too detailed and often very technical discussions.

However, the delegation of the power to adopt delegated acts is subject to strict limits. Only the Commission can be empowered to adopt delegated acts. Moreover, the essential elements of an area should not be subject to a delegation of power.

In addition, the objectives, content, scope and duration of the delegation of power should be laid down in the legislative acts. Finally, the legislator must explicitly lay down in the legislative act the conditions under which this delegation may be exercised. In this context, the Parliament and the Council may provide for the right to withdraw the delegation or to object to the delegated act.

Useful links

GDPR for road operators	https://www.crow.nl/downloads/pdf/verkeer-en-vervoer/verkeersmanagement/verkeersregelinstallaties/handreiking-avg-voor-wegbeheerders-def-zonder-bijl.aspx
DATEX II	https://www.datex2.eu/
EC mobility and transport	https://transport.ec.europa.eu/news/european-commission-adopts-new-initiatives-sustainable-and-smart-mobility-2022-02-02_en
INSPIRE	https://inspire-geoportal.ec.europa.eu/ https://inspire.ec.europa.eu/data-specifications/2892
NAPCORE	http://napcore.eu/
TN ITS	https://tn-its.eu/
RTTI	https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32022R0670

2 ITS Directive and the Delegated Regulations

The adoption of the ITS Directive in 2010 created a legal framework for the coordinated deployment of ITS in the EU. On the basis of the Directive, the Commission has introduced legally binding specifications for interoperability and continuity through delegated acts, and developed some necessary standards. The ITS Directive empowers the European Commission to define delegated regulations with detailed specifications. In 2023, an amendment was made to the ITS directive. See for more information https://crow-smartmobility.nl/kenniscatalogus/its-richtlijn/.

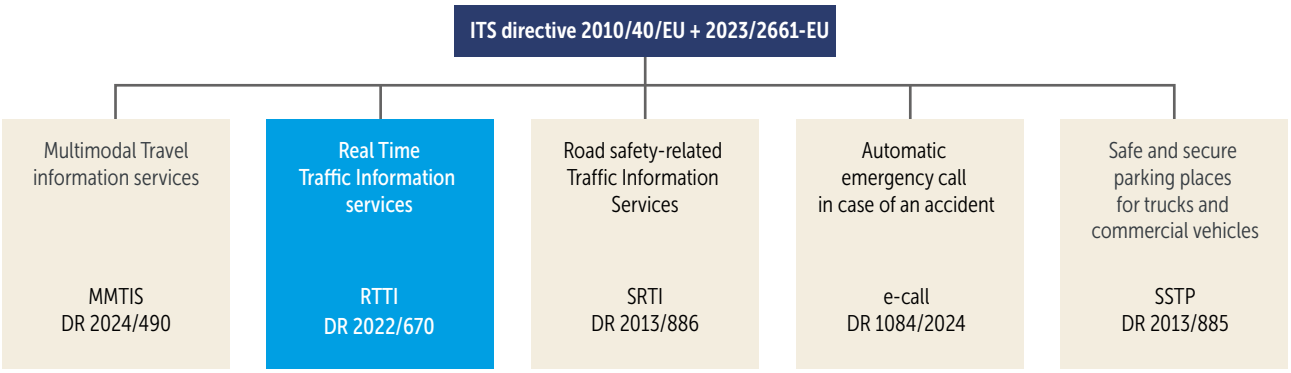


Figure 1. The ITS Directive and the related delegated regulations.

3 The scope of the revised RTTI Delegated Regulation

3.1 General

The RTTI Regulation lays down the necessary specifications ensuring the accessibility, exchange, re-use and updating of data by data holders and data users for the provision of EU-wide real-time traffic information services, and to ensure that these services are accurate and available cross-border to end-users. The basic data are already in place (machine readable format) and must be shared in real time within the EU.

3.2 Revision

In 2021, the RTTI Delegated Regulation was revised on a number of aspects. This was necessary in order to extend the geographical scope from the main road network (TEN-T and other motorways) to ultimately the entire road network for motorised traffic. A number of new data types have also been added to the RTTI specifications. In addition, constructive and broader cooperation between partners in the public-private chain is encouraged. The revision takes into account, inter alia, that service providers must actually use the data, provided that they are of good quality. This will therefore ultimately affect the work processes of both the service providers and the road operators.

3.3 National access points (NAPs)

The requested data are accessed in each Member State via a National Access Point (NAP). For all 5 delegated regulations, a National Body is allocated per Member State. This is the body that monitors compliance. In the Netherlands, this is done by Rijkswaterstaat (in the case of SSTPA and SRTI). For RTTI, this will in principle be developed in National Access Point Coordination Organisation for Europe (NAPCORE). Within NAPCORE, the NAPs for mobility data of the different European Member States work together. The Platform was established in December 2021 and runs until the end of December 2024. The aim is to further develop the digital infrastructure for ITS across the EU. This is to increase the accessibility, interoperability and discoverability of mobility data in Europe, in order to provide the end user (the traveller) with (real-time) navigation and travel information within Europe as efficiently as possible.
This requires stronger cooperation between existing NAPs and the harmonisation and strengthening of their services. Cooperation shall focus on the following main elements:

- Developing and implementing sustainable EU-wide governance for the NAPs;
- Harmonising and improving NAP service provision;
- Developing generic products to improve data collection, accessibility and exchange (including standards);
- Harmonising monitoring of the implementation of the applicable legislation.

3.4 The FRAND principle

With the revision of RTTI, the so-called FRAND principle has been introduced. In short, the data transfer between commercial parties and public authorities is applied in a fair, reasonable and non-discriminatory manner. This principle has been introduced to facilitate the transfer and re-use of data types from, inter alia, vehicle manufacturers (e.g. vehicle data) and from service providers, as these data can support public tasks. Relevant issues will be addressed more specifically later in this document. In short, in the light of RTTI, it amounts to the (re) use of data by public authorities within the EU on a non-discriminatory basis; following quality requirements developed by cooperating Member States; within a timeframe appropriate to the reliable and effective use of the data in real-time traffic information services; through the National or Common Access Point (NAP). Data users and data holders shall cooperate to ensure that any inaccuracies relating to the data are reported without undue delay to the data holder from which the data originated.

Fair
Reasonable
And
Non
Discriminatory

4 What are the data and types of data?

There are a number of consequences for road operators arising from the RTTI Delegated Regulation. The envisaged public-private dialogue means that there are both obligations and, of course, benefits.
Road operators, public authorities and service providers are expected to cooperate as closely as possible, for the benefit of the end user at the heart of this process.

The general principle is that it is data that is already in place and that it can be accessed in real time ('as soon as possible') for use by third parties. Therefore, there is no need, in principle, to provide data that is not available. Nor is it necessary to generate new data to comply with RTTI!

This refers only to data available in machine-readable formats. This means a structured format that can be read and processed automatically by a computer, such as commas separated values (CSV), JavaScript Object Notation (JSON) or Extensible Markup Language (XML). Certain data categories should also be provided in DATEX II, INSPIRE or TN-ITS standard.

DATEX II refers globally to current traffic data, TN-ITS the more static road characteristics.

The road operator as a data holder is increasingly entrusted with tasks. It is important to work together and draw on the right expertise. In doing so, the road manager will have to monitor the achievement of policy objectives, a data specialist can be used to access the data properly and a privacy and security specialist to see if there are any sensitivities in the GDPR chain. They may also monitor the risks of data leaks. It is also advisable to cooperate regionally in, for example, Regional Data Teams (RDTs).

When looking at the type of data requested, we see a number of generic data types, which need to be further defined by the Member States themselves. A number of data clusters have also been mentioned, in which the various types of data are grouped together.
A number of data types interact with the Dutch Data Top 15. Under the Data Top 15, data is already available on a number of elements, and in a number of cases these datea will be covered by this Delegated Regulatoin. It is important to continue working on these items and to ensure that they are of high quality and accessible real-time.

4.1 What are the data and types of data?

The minimum items to be included by the Member States are listed below. To compare them with the Dutch Data Top 15, the right-hand column is included. It merely reflects the commonalities. It has not been said that the item already covers both the type of data and the geographical scope in terms of compliance with the RTTI. The following types of data have been identified in relation to infrastructure:

Type of data requested	Possible interpretation
Road network links and their physical attributes	This could include issues such as highway links and their specific characteristics. For example, the type of node or connecting arc but also on the underlying road network the geometry, road width, number of lanes, slopes and intersections.
Road classification.	In the Dutch situation, consideration could be given to the road categorisation as we know in the "Duurzaam veilig" (sustainably safe) or in the "Multimodaal Netwerkkader" (multimodal network framework).
Location of tolling stations.	
Location of service areas and rest areas.	This may include parking spaces where a driver can rest, service stations; road restaurants, drivers' cafés, etc.
Location of recharging points for electric vehicles and the conditions for their use.	Location and user information of recharging points.
Location of compressed natural gas, liquefied natural gas, liquefied petroleum gas stations.	These are service stations of fossil fuels such as petrol, gas, CNG and diesel, etc.
Location of refuelling points and stations for all other fuel types.	Fuels such as hydrogen.
Location of delivery areas.	Storage and transfer points and pick up points can be examples of this.

4.2 The crucial types of data on regulations and restrictions

This category refers to data types related to regulation targeted at the road user. Importantly, these crucial data types should already be available as of 1 January 2025.

Type of data requested		Possible interpretation
Static and dynamic traffic regulations, where applicable	Access conditions for tunnels	This could include restrictions in terms of dimensions (such as height) and the category of dangerous substances which may or may not be prohibited.
	Access conditions for bridges	This should include vehicle category, maximum weight, size (width and height), etc.
	Permanent access restrictions	This may include, for example, the prohibition of a certain category of vehicles (such as lorries, motor vehicles, cyclists, pedestrians or agricultural vehicles, etc.), but perhaps also matters such as environmental zones.
	Speed limits	Themaximum speed at the location concerned. This requires careful consideration of issues such as road sections. A section of road may contain several speeds. This also concerns dynamic speeds as are used in motorway management and hard shoulder lanes.
	Freight delivery regulations	This could include, for example, what type of vehicle can come where to deliver goods.
	Overtaking bans on heavy goods vehicles	Both static and dynamic, or temporary (as in the case of roadworks).
	Weight/length/width/height restrictions	The restrictions on certain vehicles.
	One-way streets	Roads where one-way traffic is in place.
	Boundaries of restrictions, prohibitions or obligations with zonal validity, current access status and conditions for circulation in regulated traffic zones	This could include areas such as 30 km or 60 km, environmental zones, residential areas, etc. or, for example, re-routing due to air quality issues.
	Direction of travel on reversible lanes	The current direction of travel on dynamic lanes (tidal flows). In addition, dynamic lane divisions could also be considered here.
Traffic circulation plans		This is a broad concept that can include issues such as network guidance information. In the Netherlands, such cases are currently being developed within the Talking Traffic project VM-IVRA.

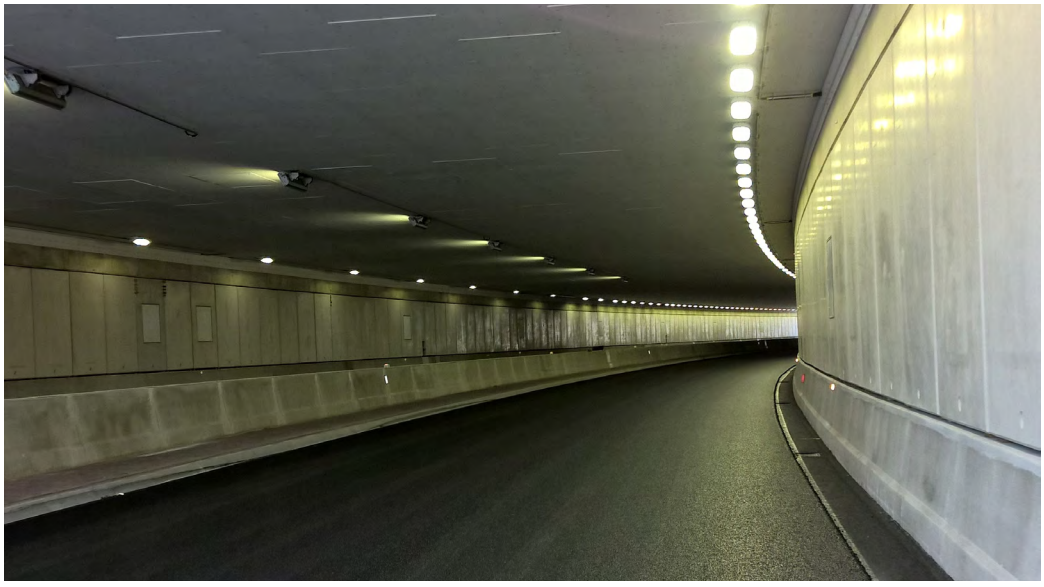
The latter term is therefore expected to become more effective in the near future. The major advantage of this effort is that the road manager can influence the guidance provided by service providers to road users. See Chapter 7.

4.3 Other types of data on traffic regulations and restrictions

The types of data referred to in 4.2 are further broadened with a kind of safety net for other types of data that could in some way not be covered by 4.2.

In the Dutch context, it may also be advisable to include real-time information on the availability and accessibility of (river)ferries. Member States are free to take such matters into account. After all, it is ultimately the user's perspective and can therefore also be covered by the 'crucial information' on which the RTTI is based.

Type of data requested		Possible interpretation
The location and identification of traffic signs reflecting traffic regulations and identifying dangers	Access conditions for tunnels	Everything related to traffic rules, for example, which is displayed on variable message signs, and is integrated into signposting (such as in the Netherlands the K14 – routes for dangerous substances), delivery windows and any other items that can be considered but may not be placed directly under the points in 4.3
	Access conditions for bridges	
	Permanent access restrictions	
	Other traffic signs reflecting traffic regulations	
	Static and dynamic traffic regulations, if applicable, other than traffic regulations refered to in point 4.3	
	Variable road user charges and available payment methods, including retail channels and fulfilment methods.	This may involve paying for use, or other charges such as road charging, etc. Therefore, it seems to be specific data linked to locations (map).
	Identification of tolled roads, applicable fixed user charges and available payment methods (including retail channels and fulfilment methods)	Location of toll roads and up-to-date information on payment options, rights and conditions.



4.4 The crucial data on the state of the network

This data type refers in particular to temporary circumstances. Importantly, these crucial data types should already be available as of 1 January 2025.

Type of data requested		Possible interpretation
The crucial types of data on the state of the network	Road closures	The basic points seem to be related to restrictions and closures due to incidents, events and roadworks on the network, of a temporary nature.
	Lane closures	
	Roadworks	
	Temporary traffic management measures	

This also concerns real-time information, which means that it must always be up to date, including in the case of roadworks or (temporary) closure of road sections or lanes. The current availability of services and accessibility for travellers seems to be more regulated in the MMTIS regulation. In principle, RTTI refers in particular to information related to geographical information.

4.5 Other types of data on the state of the network

All other disruptions on the route, other than those mentioned under 4.4 which may be of a less critical nature, are still covered.

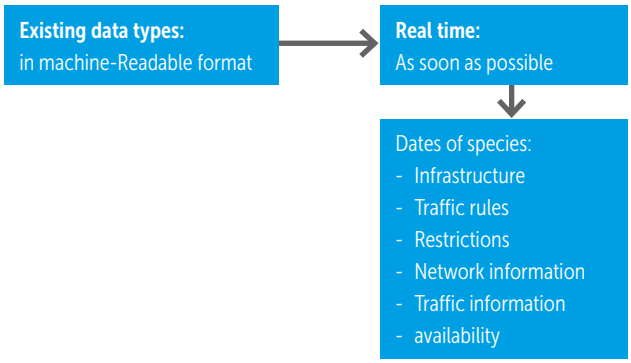
Type of data requested		Possible interpretation
Other types of data on the state of the network	Bridge closures	Any other disruptions that a road user may experience in real time on his route. These include those that have a constraint (such as bridge opening), pose a hazard (accidents) or affect travel conditions (such as visibility and smoothness).
	Accidents and incidents	
	Poor road conditions	
	Weather conditions affecting road surface and visibility	

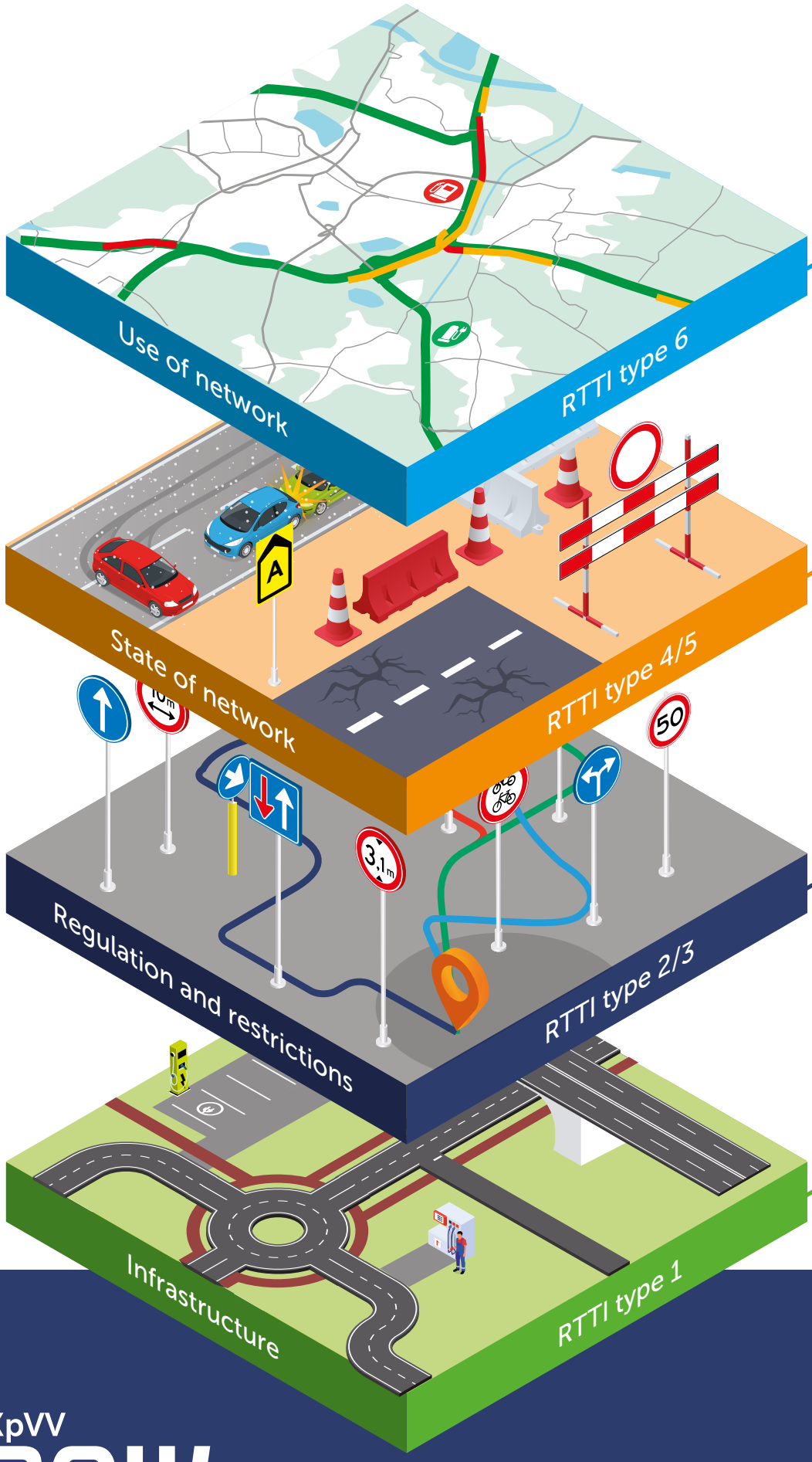
4.6 Traffic information

Finally, these data relate to the flow of traffic and the congestion that can be experienced as a driver of a vehicle during the journey (MMTIS is more concerned with passengers in the multimodal transport chain).

Type of data requested		Possible interpretation
Data on real time use of the network	Traffic volume (traffic density)	These data are currently commonly known as Floating car data (FCD) and (later) also Floating bike data and other conceivable data types related to traffic fluidity or delays, such as sensor data, loop data, bluetooth, camera, ANPR, etc.
	Traffic speed	
	Location and length of traffic queues	
	Travel times	
	Waiting time at border crossings	Such delays are generally not widespread and seem to be more related to the EU's external borders or exceptional situations.
	Availability of delivery areas	Finally, it is about the real-time availability of services and the prices of fuels and charging facilities, of course also in real time.
	Availability of recharging points and stations for electric vehicles	
	Availability of refuelling points and stations for alternative fuel types	
	The price of ad hoc charging/refuelling	

It remains important to bear in mind that this is real-time information, which is interpreted in the regulation as 'as soon as possible'. Therefore, there should in fact be no undue delay in the data stream in accessing the types of data. Of course, this is reasonable and depends on the type of data.
Special attention will be paid to the roadworks. These data are far from being of good quality.




Use of network
RTTI type 6
State of network
RTTI type 4/5
Regulation and restrictions
RTTI type 2/3
Infrastructure
RTTI type 1
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6 The types of data on the real-time use of the network:

a traffic volume;
b traffic speed;
c location and length of traffic queues;
d travel times;
e waiting time at border crossings;
f availability of delivery areas;
g availability of recharging points and stations for electric vehicles;
h availability of refuelling points and stations for alternative fuel types;
i price of ad hoc recharging/refuelling.

4 The crucial types of data on the state of the network:

a road closures;
b lane closures;
c roadworks;
d temporary traffic management measures.

5 Other types of data on the state of the network:

a bridge closures;
b accidents and incidents;
c poor road conditions;
d weather conditions affecting road surface and visibility.

2 The crucial types of data on regulations and restrictions:

a static and dynamic traffic regulations, where applicable:
  i access conditions for tunnels;
  ii access conditions for bridges;
  iii permanent access restrictions;
  iv speed limits;
  v freight delivery regulations;
  vi overtaking bans on heavy goods vehicles;
  vii weight/length/width/height restrictions;
  viii one-way streets;
  ix boundaries of restrictions, prohibitions or obligations with zonal validity, current access status and conditions for circulation in regulated traffic zones;
  x direction of travel on reversible lanes;
b traffic circulation plans.

3 Other types of data on regulations and restrictions:

a the location and identification of traffic signs reflecting traffic regulations and identifying dangers:
  i access conditions for tunnels;
  ii access conditions for bridges;
  iii permanent access restrictions;
  iv other traffic signs reflecting traffic regulations;
b static and dynamic traffic regulations, where applicable, other than traffic regulations referred to in point (2);
c identification of tolled roads, applicable fixed user charges and available payment methods (including retail channels and fulfilment methods);
d variable road user charges and available payment methods, including retail channels and fulfilment methods.

1 The types of data on infrastructure:

a road network links and their physical attributes:
  i geometry;
  ii road width;
  iii number of lanes;
  iv gradients;
  v junctions;
b road classification;
c cation of tolling stations;
d location of service areas and rest areas;
e location of recharging points for electric vehicles and the conditions for their use;
f location of compressed natural gas, liquefied natural gas, liquefied petroleum gas stations;
g location of refuelling points and stations for all other fuel types;
h location of delivery areas.

5 Relevance to the implementation for road managers in the Netherlands

In the Netherlands, the joint authorities have agreed on the digitalisation of traffic and mobility data (BO MIRT 2018). Among other things, it sets the target of 90 % of mobility data being in order for the so-called Data Top 15 by 2023.

This Dutch Data Top 15 consists of the following items:

1 Planned road works
2 Current road works
3 Incidents
4 Duration of incidents
5 Maximum speeds
6 Signs (orders and prohibitions)
7 Regulatory scenarios from traffic centres
8 Variable message signs on national roads
9 Bridge openings
10 Static parking data
11 Dynamic parking data
12 Event data
13 iVRI data (incl. topology)
14 Data for logistics (e.g. environmental zones, loading and unloading leaks, ramps)
15 Bicycle data (e.g. origin/destination, routes and speeds, use of installations)

The Netherlands already has a NAP. This is the National Mobility Data Access Point (In Dutch: Nationaal Toegangspunt Mobiliteitsdata, abbreviated to NTM).

Navigation services, car manufacturers and other service providers can develop innovative car information services using public data. However, the provision of information to road users is now fragmented, as the functionalities vary from one provider to another or the car cannot (yet) receive all the notifications, while safety warnings have a significant positive impact on safety for both drivers and emergency workers. For example, end-of-queue warnings can avoid 1 out of every 5 collisions. This can already be done in areas where variable message signs are on the road, but putting the information inside the vehicle will reach more road users.

Thanks to public data investment, the Netherlands is at the forefront of this development. For example, through cooperation with industry, we can already get some priority safety information from road users in the car. These include approaching emergency services, alerts for approaching traffic jams and red crosses on closed lanes. In this cooperation it is agreed what constitutes a safety notification and a fee is set for the service provider in respect of each kilometre driven with the active service. Therefore, only the impact on the road is paid. This impact is closely monitored.

5.1 Feedback loop

This year the Ministry of Infrastructure and Water Management launched an initiative to provide road safety services to Dutch road users. This cooperation will include looking at the usability, quality and availability of public data from partners. This so-called feedback loop should ensure that there is an external quality control of the public data and a dialogue on the development of the public data.

5.2 The impact on the road manager

RTTI focuses on data holders. Data holders are obliged to make existing data available to users in real time. Road operators are both data holders (in particular the data types 1-5, including the critical data types 2 and 4). For policy purposes and monitoring, road operators also include data users (e.g. data types 5 and 6).

But what are now the expected efforts of a road manager, and what will they ultimately be expected to do?

5.2.1 The expected efforts for road operators as data holders

The transition to data-driven work processes will require new competences. There will soon be a need for a data analyst who can help to access the data properly. In addition, particular attention should be paid to privacy and security. Provinces can have an important role in organising regional cooperation in Regional Data Teams (RDTs) in order to jointly look at this issue and possibly also jointly procure or attract expertise. This will also require regular checks on privacy sensitivities that may require a GDPR specialist.

Another effort is to get the data of higher quality and real time. A significant example of this is data on roadworks. Both data around restrictions and closures and dynamic speeds limits will have to become available in real time.

5.3 The benefits for the road managers

Of course, the benefits are also significant. For example, by giving data users (such as service providers) a role in monitoring and validating the quality of the data, this will improve the information to the road user and possibly make it more personalised and ultimately available in the user's language.

In the case of network information, if a road manager makes traffic management measures or traffic circulation plans available digitally, the service providers must actually use those data in their services, at no extra cost to the end-user.

Reliable speed limit data can help the user uptake of intelligent speed assistance (ISA).
Furthermore, in the long term, a road operator can show information to road users in locations where there is no physical dynamic route information panel (DRIP) by providing the information through in-car information services.

Finally, working together in RDTs can lead to a more balanced mobility network, pooling forces, efforts and knowledge, as well as due to the increased focus on GDPR ultimately avoiding liability in this area.

6 Geographical scope and entry into force

6.1 Scope

So far, it has been about the data themselves, the accessibility of data in real time and which elements are then made mandatory. This section deals with the geographical scope of the network and its entry into force.
The previous version of the RTTI (18-12-2014) focused on the TEN-T network and other motorways. With the entry into force of the revised RTTI in 2022, we see a clear widening to the underlying road network. This is done in a number of steps as described in the table below.

As a matter of priority, Member States must submit a map to the Commission on 1 January 2023, clarifying what that Member State means by the 'main road network'. This is at least:

- The TEN-T network
- All motorways
- Other main roads (to be determined by Member State according to their own choice)

6.2 Effectuation

This will therefore have to be implemented in 2022. At the latest 2 years later, all existing data must be accessible in real time.
By the end of 2027, the network will be extended to:

- All public roads accessible to motorised traffic
- However, critical data types should already be available across the network by 1 January 2025.

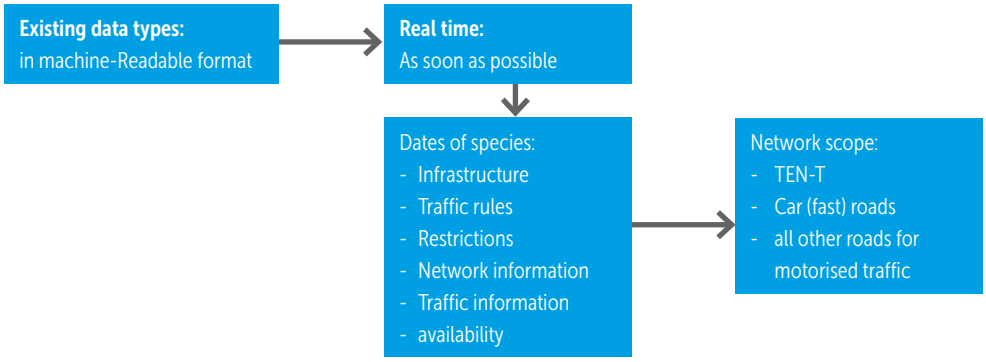
This will mean a substantial extension of the network coverage and will also affect road operators.

6.3 Towards better quality

The proper functioning of the whole information chain towards the end-user will require special attention to be paid, for example, to speed limits that are lowered during maintenance and roadworks. Measures to make this possible will have to be included in roadwork contracts. Although the data might be already in place, road operators should still pay attention to this to allow proper functioning of ISA.

We also see a backlog in reporting roadworks. This usually refers to existing data in systems such as MELVIN (the Dutch digital register of roadworks). These are now mainly used to coordinate work in a region with the aim of avoiding interference between different alternative routes that are advised, etc., but it is certainly not often provided in real-time. Are planned works actually carried out at that time? What if a roadwork is completed earlier or later than planned? One condition is that the data is of good quality.

Network	Entry into force
Map and list of the TEN-T network, motorways and primary roads	1 January 2023
Data available from the TEN-T network, motorways and primary roads	1 January 2025
All other roads accessible to motorised traffic	Crucial data as of 1 January 2025, other data types as of 31 December 2027



7 Dialogue, benefits and added value

Irrespective of the end user, the new RTTI also contains constructive guidelines on policy. The dilemma between service providers and public authorities is also the route to constructive dialogue.
Realising that a basic service provider serves the individual customer and wants to offer the fastest or most comfortable route, a public authority looks more at the collective interests such as traffic safety or environmental effects, where policy objectives do not appear to be the best for a single individual at any time.

It may be appropriate here too to embrace the FRAND principle (although in the RTTI this in fact refers only to the data transfer itself). Another example of this is the following:

In the figure below, a service provider has advised a route through a navigation device that passes through a village. This route has road sections with speed limits of 60, 50 and 30 km/h and passes through the village. The envisaged re-routing option is a provincial road with a speed limit of 80 km/h. It could be concluded quickly that the route

	Public	Dialogue		Private
		Government	Market	
Routing	Sharing of network information	Policy is aimed at the collective society	⟷ Service providers serve the individual customer	Navigation

However, it is a misunderstanding that service providers do not have an eye for that, as they are also often very aware of socially acceptable routing. However, it cannot be the case that the service providers who use this information and prevent certain routes from being advised in their services, would allow other service providers to use the traffic space which would then be created. It is precisely in this that the RTTI Delegated Regulation uses the right tone:

- Service providers shall process and include, in the relevant services they provide, with no additional cost to the end-user, data on any traffic circulation plans and traffic regulations and restrictions developed by the competent authorities and made accessible at the national or common access point.
- Service providers shall process and include, with no additional cost to the end-user, in the relevant services they provide, any temporary traffic management measures developed by the competent authorities and made accessible at the national or common access point.

This means that if a road manager makes network information available, service providers must use that information. This means that road operators have some influence on the choice of routes and information to users, including in places where, for example, no route information panels exist, or without those road operators having their own traffic management centre. Since this applies to all service providers using the data, there should not be any stakeholders taking advantage of the routes that are avoided by others on the basis of the data.

through the village in the navigation system should be regarded as the route to avoid. At present, the village route is much faster than the provincial road, due to serious traffic delays at the intersection of that provincial road. The question then arises whether it is reasonable from the end-user's point of view to avoid the route through the village, or whether it is reasonable to find a solution to the congestion, so that the problem will no longer arise.

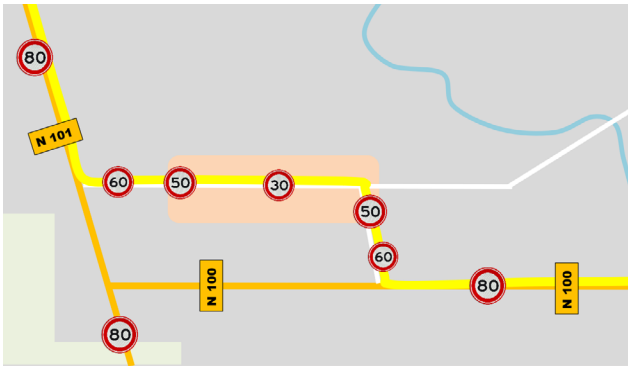


Figure 2. Presentation of a routing advice sent to navigation devices

Another example is the avoidance of a school zone, which can be a good example of a route to avoid in navigation devices. It should be kept in mind that this should be the case when the school is actually open (on the basis of holiday schedules) and that this may be included in the data. More importantly, however, when there is an obligation to avoid a specific area, an alternative should be provided so that no routing gaps arise in the network. It is clear that such route avoidance usually only relates to local traffic which is therefore close to the origin or destination, but this may also make sense in times of serious congestion on the main road network (of an occasional nature). In order to avoid mass through-routing or rat running. It is of course even better that a school zone is naturally avoided because of its physical layout.

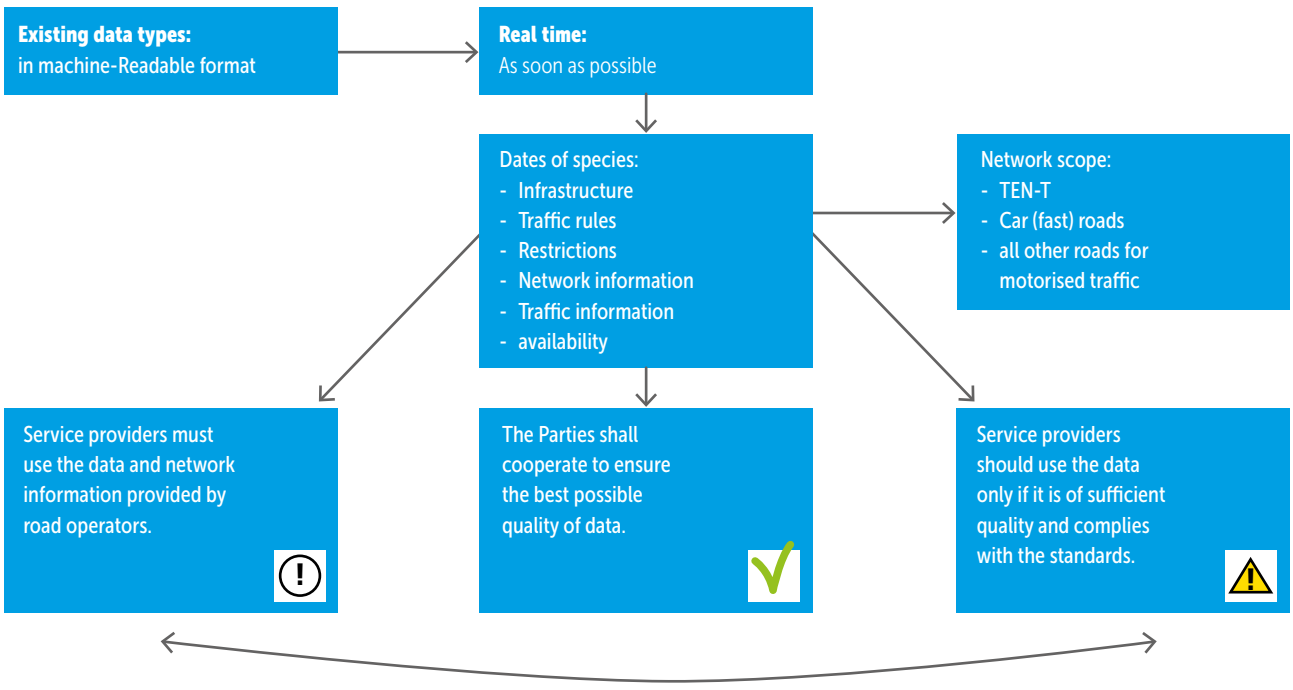
Regarding RTTI, we come back to the quality of the data. Service providers are obliged to use the data, but these should be of good quality. Service providers will often also validate data first. A paragraph to ensure data quality is also included in RTTI, so that if inaccuracies in the data supplied are detected on the basis of other sources, it is immediately reported back to the data holder:

- Data users and data holders shall cooperate to ensure that any inaccuracies relating to the data are reported without undue delay to the data holder from which the data originated.

This actually creates a kind of feedback loop in which data from both parties is kept as much as possible up-to-date.

Finally, the network information of a road manager needs to be used only if its quality is good. If a road appears closed in the data (due to roadworks) but other sources indicate that the road is open, the data is therefore not valid. The service provider can also call on the road operator update this. Indeed, if a service provider can demonstrate that data from a given road operator is generally of too low quality, that may be a legitimate argument that such data should no longer be used. Of course, this is a good argument for moving towards more data-driven work processes that keep the data up to date and attract the necessary competences within the road management organisations so that good quality data is given due attention, including data privacy and data quality issues.

The RTTI in a nutshell



Colofon

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