



# TN-ITS

Map Update Exchange

## VISION

Bringing fresher digital map data to intelligent transport services, including authoritative and regulatory data.

## MISSION

Facilitate and foster the exchange of ITS-related spatial road data along the entire mobility data chain.

### Multi-stakeholder platform:

- Data providers
- Road authorities
- Map makers
- Service providers
- Application providers

### Coordinated by



### Supported by



### The TN-ITS data-sharing mechanism

The TN-ITS data sharing mechanism enables timely provisioning and updates on changes in attributes of the physical road network infrastructure, for ITS applications like digital maps updates and other regulatory driven applications and services.

### The innovation platform

This multi-stakeholder platform aims to facilitate and foster, improving road safety, ensuring efficient use of the road network, and the uptake of automation, by maintaining, developing and deploying the TN-ITS EU data exchange standard according to CEN TS 278.

### Involved EU policies

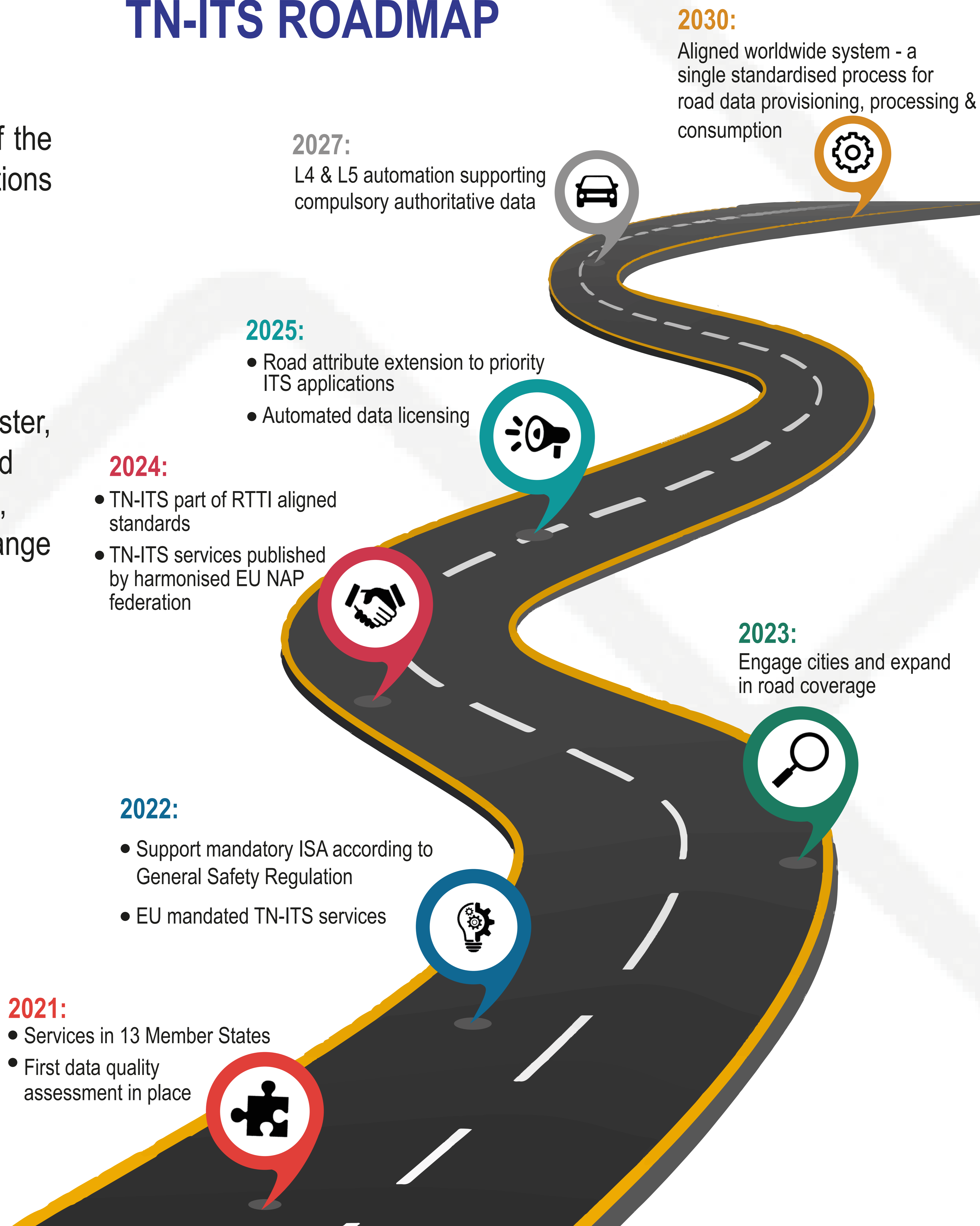
- Directive 2010/40/EU (ITS Directive), providing a framework for the adoption of common standards and specifications for
- Commission Delegated Regulation (EU) 2015/962 of 18 December 2014, supplementing Directive 2010/40/EU concerning the provision of EU-Wide Real-Time Traffic Information services (RTTI).
- TN-ITS is mandated by the recent adopted revision of the adopted delegated regulation

[www.tn-its.eu](http://www.tn-its.eu)

TN-ITS data is published on many EU NAPs



## TN-ITS ROADMAP



Co-financed by the European Union  
Connecting Europe Facility

TN-ITS is about “Frequent sharing of changes of road attributes on EU roads from a trusted (authoritative) source in a harmonized way for the (automated) maintenance of reference spatial data layer to support map-enabled ITS applications.”

## Focusing on changes of road attributes

The main objective of TN-ITS services for road and city authorities is to provide changes in road attributes. Digital maps are already available from commercial providers. Yet, their maintenance remains a challenge despite advanced data collection technologies such as mobile mapping, floating car data, community feedback, etc. changes, in reality, can occur without being captured quickly.



Road/city authorities may actually find it easier or more efficient to kick start the sharing of changes of road data – instead of first having to build a reference road data database, which often requires significant effort and time to do so!

## Which road attributes?

The TN-ITS focuses on exchanging static road attributes described in the RTTI Delegated Regulation. Speed limits information has the highest priority, followed by lane information, road name, restrictions, warnings, etc. Information can be shared as line attributes or as point attributes (reflecting traffic signs).



A specification work group of the TN-ITS platform – now also actively working in the NAPCORE programme - ensures the support for new attributes such as Infrastructure Support for Automated Driving levels, etc.

## Covering all road classes, European

A TN-ITS data exchange infrastructure is planned for all road classes in Europe, not just TEN-T or motorway networks. Some operational services already share changes for the entire national road network, whereas some pilot services are limited to TEN-T coverage. Urban and non-urban roads are both in scope. So if you are responsible for part of the road network, that is fine!



The revised ITS Delegated regulation mandates that all RTTI attributes should be made available by December 2025.

## Trusted source and re-usable data

A major aspect of the TN-ITS data chain is that road data today is published by road authorities in Europe. This results in a level of trust for the users of provided road data and positively impacts data ingestion by map & service providers.



Other road data providers can set up TN-ITS services, e.g. commercial organisations, NGOs, ... and adopt the TN-ITS exchange protocol. For data to be re-usable by commercial parties its is required that a suitable data license is in place (attribution is ok, share alike/non-commercial is not ok): e.g. CC0

## EU harmonized: a CEN Technical Specification

In 2018, the “Technical Specification 17268” was released by the European standardisation body CEN. It describes the technical aspects of a common interface of how changes in static road data can be defined and shared. It is the basis of about 10 TN-ITS services deployed in the TN-ITS GO project and the reference for future deployment of services. The recommendation is to adopt this CEN TS.



A revision of the CEN Technical Specification is due. But it will result in a new release soonest by the end of 2023 and will capture both corrections and updates (e.g. to support new data types). Till then, missing road attributes can always be supported using a code list extension.

## Frequent updates

Some TN-ITS services publish datasets of changes in road data on a daily basis. This is the goal state as leading map & service providers can handle everyday releases. However, most services collect changes and publish them with a weekly frequency. This is also fine, but the faster, the better.



The updates can also feed the reference road database if already in place.

## Map reference layer

Road-centric spatial data is the reference enabler of many ITS/Automotive technologies, application and services. It is the basis of other layers of spatial data that get their context from this layer: Points of Interest, traffic information, LEZ info, weather, traffic management, MaaS, ISA, etc. Today, the highest quality of these reference layers is available from commercial providers. It is their mission to aggregate road data and support applications to meet the high demands of their customers.



The map reference layer is the reference for all interesting mobility applications. Sharing TN-ITS data allows the authority to guide and control those applications.

## Map-enabled applications

The TN-ITS data channel was originally conceived to support automotive technologies (ADAS) with a focus on Intelligent Speed Assistance (ISA). However, over the years, as basic map layers are used in an increasingly wide variety of (cooperative) ITS technologies where road data are essential, e.g. CCAM, the TN-ITS data chain increases in importance. Also, maps are the reference layer in route planning.



Data enables the applications and controls how they work!

## Location Referencing

The TN-ITS specifications support multiple locations referencing methods to maximize the successful spatial cross-referencing of road attributes. Most operational services offer both OpenLR, an open map agnostic location referencing method, and support GML coordinates or coordinate strings (expressed in WGS84).



Select your one or multiple location referencing methods, according to your preference or legacy.

## Quality levels

Road authorities as data providers can self-indicate quality levels. To start a TN-ITS service there is no precondition on coverage, road attributes (though speed restrictions are highly important), data release frequency, ... However, the more advanced a service is the higher the scoring and the better the reuse of the published changes in road data.



You can opt to publish your quality levels via the TN-ITS platform website, or via the NAP, to answer the expectations from the data-users.

## Main benefits

For data providers: have road data changes end up in applications and technologies ensuring the road safety and comfort of citizens – and support the EU data-related policies (RTTI, PSI, Open Data, ...) while supporting traffic efficiency and sustainability.

For data users: have EU-wide harmonized access to authoritative/trusted road data to benefit automated ingestion of road data changes for map maintenance.



For TN-ITS service providers: ensure the swift take-up of your preferred mobility applications & provide the right data to support their preferred operations.