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| <b>TNI</b> | <b>Inteligentné dopravné systémy<br/>Normy a opatrenia potrebné pre koordináciu<br/>územnej infraštruktúry na podporu IDS</b> | <b>TNI<br/>CEN/TR 17143</b><br><br>01 8617 |
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Intelligent transport systems - Standards and actions necessary to enable urban infrastructure coordination to support Urban-ITS

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## Intelligent transport systems - Standards and actions necessary to enable urban infrastructure coordination to support Urban-ITS

Systèmes de transport intelligents - Normes et actions  
nécessaires pour permettre la coordination des  
infrastructures urbaines en faveur des STI urbains

Intelligente Verkehrssysteme - Notwendige Normen  
und Aktivitäten um die Koordination der urbanen  
Infrastruktur zur Unterstützung urbaner ITS zu  
ermöglichen

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**CEN/TR 17143:2017 (E)****European foreword**

This document (CEN/TR 17143:2017) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

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## Introduction

Cities are home to over 70 % of the EU population and account for some 85 % of the Union's GDP. Most journeys begin and end in cities. In many urban areas, however, increasing demand for urban mobility has created a situation that is not sustainable: severe congestion, poor air quality, noise emissions and high levels of CO<sub>2</sub> emissions. Urban congestion jeopardises EU goals for a competitive and resource-efficient transport system.

With its declared 'Urban Mobility Package', the Commission reinforces its supporting measures in the area of urban transport by:

- sharing experiences, show-casing best practices, and fostering cooperation,
- providing targeted financial support,
- focusing research and innovation on delivering solutions for urban mobility challenges.

In accordance with Article 8 of Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of 'Intelligent Transport Systems' in the field of road transport and for interfaces with other modes of transport, the Commission may request the European standardisation organisations (ESOs) to develop necessary standards to provide interoperability, compatibility and continuity for the deployment and operational use of ITS. Such standards are scoped by Articles 2, 3, 4 (1), and Annex J of Directive 2010/40/EU [2] to specific priority areas and priority actions in the field of ITS. (Annex J also stresses the need for urban and interurban interfaces for data exchange, and the interoperability and compatibility between the urban and European ITS architectures.)

Within the overarching ITS objectives set by Directive 2010/40/EU [2], the urban dimension has its own needs envisioned in the Action Plan on ITS (2008) [33] and the Action Plan on Urban Mobility (2009) [38]. In 2010, the European Commission set up an Expert Group on Urban-ITS, with the participation of representatives of local authorities and their main partners, from the fields of research, industry, transport authorities and operators, standardisation bodies, etc. This 'Expert Group on Urban-ITS' developed guidelines on the deployment of key applications of Urban-ITS (namely: multimodal information, smart ticketing, traffic management and urban logistics), collected a number of best practices and reflected upon the need for further standardisation in the domain of Urban-ITS. The 'Expert Group on Urban-ITS' recommended better integrating the urban dimension within European standardisation activities and focusing standardisation efforts on multimodal information services including new mobility services, traffic management including access management, and urban logistics including reservation of loading bays. The standardisation efforts should cover existing gaps, upgrade and complement existing standards and ensure the establishment of the needed urban-interurban interfaces.

The EC Communication "Against lock-in: building open ICT systems by making better use of standards in public procurement" [41] points to the benefits of using standards and open specifications to avoid vendor lock-in of technological solutions, and promote the deployment of more cost-effective solutions. Its accompanying 'Staff Working Document' "Guide for the procurement of standards-based ICT - Elements of Good Practice" [42], lists a number of examples of open specifications in the transport domain, but also shows a lack of common standards for ITS.

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The 'Expert Group on Urban-ITS' recommended involving local authorities and experts with specific urban knowledge in the ITS standardisation process. Therefore, the European standardisation organisations are invited to liaise with relevant bodies representing urban mobility and interested in Urban-ITS, such as standardisation coordination groups and organisations, local standardisation frameworks, experts and stakeholder platforms, cities and regions associations, user associations, transport operators and service provider's representatives. The resultant Project Team (CEN/TC 278/PT 1701) therefore comprises a mix of standardisation experts and experts from within or associated with Urban administrations, and organisations such as POLIS, and, importantly is linked to a wider outer network of experts, largely associated with Urban administrations, with whom it will consult and seek opinion and feedback to its initial proposals. The composition of the project team, in accordance with CEN project team selection procedures, was dependent on, and limited by, those who responded to the call for experts. While it was hoped that many Urban Administrations would be inclined to apply, applications were limited by the fact that public sector applicants could not be recompensed for their time costs. PT1701 have therefore worked to create contacts from other Urban Administrations to review and comment on its work (and acknowledge the help received from the European Commission in this respect), and the Interim Report is being used as a key outreach tool to achieve this participation and feedback.

The European Commission is in the final stages of processing and publishing a "COMMISSION IMPLEMENTING DECISION" (CID) on a standardisation request to the European standardisation organisations as regards Intelligent Transport Systems (ITS) in urban areas in support of Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport." [1] The measures provided for in this Decision are in accordance with the opinion of the Committee established by Article 22 of Regulation (EU) No 1025/2012 [43].

In this Decision, the European Committee for Standardisation (CEN), the European Committee for Electrotechnical Standardisation (CENELEC) and European Telecommunications Standards Institute (ETSI), hereafter referred as the ESOs (European standardisation organisations), are requested to draft new European standards and European standardisation deliverables in support of the implementation of Article 8 of Directive 2010/40/EU[2] for multimodal information, traffic management and urban logistics in the Urban-ITS domain. The CID[1] is required to be supported by a list of targeted standards to be developed as a priority. And it is within this context that this pre-study has to identify the (high level) requirements, identify available standards, and thereby identify the 'gaps' where the EC should target financial support in order to obtain/accelerate the provision of the Standards necessary to fill these gaps in order to enable efficient Urban-ITS to be instantiated.

The requested European standards and European standardisation deliverables shall be developed to be consistent and compliant with the requirements of the Delegated Acts adopted by the Commission under Directive 2010/40/EU[2], in particular the specifications for the provision of EU-wide real-time traffic information services adopted on 18 December 2014 [44], and the specifications for the provision of EU-wide multimodal travel information service [46].

This pre-study report is therefore designed to assist the European Commission to target where to provide such financial support for standards development in the areas of 'Multimodal Information Systems', 'Traffic Management', and 'Urban Logistics'.

## 1 Scope

The scope of this project is to undertake a pre-study providing stakeholder mapping, framework identification, gap analysis and identification of standards and related actions required to address the urban infrastructure aspects: the provision of

- a) multimodal information services;
- b) traffic management;
- c) urban logistics,

that are required to support the provision of Urban-ITS.

Specifically, the scope of this pre-study is to produce a technical report that will (by December 2015), for each area, specifically address the standardisation requirements to meet the following technical challenges:

- stakeholder engagement;
- common/interoperable data;
- multimodality;
- creation of (multimodal) transport datasets;
- multiple means of communication;
- urban logistics management;
- creation of urban-interurban interfaces;
- use of open standards, architectures and specifications;
- enable rather than prescribe or proscribe.

It is the intention that, while the formal deliverable of this pre-study will be a technical report, that the project team will also identify areas for draft 'New Work Item Proposals' (and justifications) for work items to fill the identified gaps, where those gaps can be filled by Standards deliverables, and that the pre-study will also consider and make recommendations for any other support measures that are considered important or essential in order for the successful implementation, management and support of Urban-ITS in an environment where this is an administration controlled and led activity and not a community-wide managed or controlled activity.

The pre-study report, in addition to its submission to the European Commission, shall be in a format suitable for adaptation to a European standardisation deliverable on Use Cases addressing the three areas of this request and highlighting their possible interdependencies. Specifically, a gap analysis identifying additional requirements and priorities for:

- d) Architecture: high level proposals outlining the parameters for a European standardisation deliverable for Urban-ITS architecture integrating the three areas of this request and highlighting connexions or interfaces with surrounding ITS applications as well as compatibility or coherence with existing standards, technical specifications, data models.

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- e) **Multimodal Information Services:** Standardisation deliverables in support of new mobility services, such as car sharing, car-pooling, public bike sharing services, park & ride, bike & ride, etc. Alternative fuel infrastructure, including information on location and availability of stations, charging models and capacity at stations, (integrated) payment schemes, etc. A European standardisation deliverable on reference data model, common data dictionary and metadata structure for multimodal information services.
- f) **Traffic Management:** Standardisation deliverables in support of European standards for: a set of traffic management measures (encompassing the necessary infrastructure / static road data, dynamic road status data, traffic data or traffic control data, weather data), a set of traffic re-routing, traffic prioritisation and access regulation measures including intersections management (supplemented by vehicle identification data). In particular, the different types of road user charging models set up in various cities as well as the modalities of shared use of dedicated lanes by different types of vehicles (e.g. freight, public transport, emergency vehicles) should be considered. European standards or European Standardisation deliverables on reference data model, common data dictionary and metadata structure for traffic management including access regulation.
- g) **Urban Logistics (Including parking management):** Standardisation deliverables in support of European standards for: Intelligent parking for light vehicles, commercial vehicles and trucks. The option of extending existing technical specifications or profiles regarding parking or adapting them to the needs of the urban areas should be considered; loading bays information and reservation services for specific freight vehicles and logistic sectors. Standards and specifications proposed will need to address both infrastructure and vehicles (including vehicle and/or load identification where relevant). Moreover, the use of alternatively fuelled vehicles for urban logistics, and the options of their charging (e.g. during loading/unloading at the specific bays) should also be looked into. A European standardisation deliverable on reference data model, common data dictionary and metadata structure for urban logistics including parking management.

For each of the identified areas, issues to be addressed by the pre-study, as defined by the Terms of Reference, are:

- h) Identify key stakeholders;
- i) High level mapping for key identified stakeholders for later participation in deliverables specification and development;
- j) Identifying the overall framework required for interoperability and interchangeability, particularly in respect of central communications architectures and centre-to-field communications (and providing use-case examples);
- k) Identifying the systems and devices that could take advantage of common structuring and implementation guidelines;
- l) Identifying barriers and constraints to the operation of the open single European market;
- m) Identifying transitional and migration issues;
- n) Providing a high level generic Concept of Operations for city/administration support for multimodal travel, traffic management and urban logistic aspects of Urban-ITS;
- o) Identifying standards requirements to assist/guide/support cities and administrations to provide support for Urban-ITS such as:

- Information level (standards and support measures for defining the meaning of data and messages);
  - Application standards (to define the rules and procedures for exchanging information data);
  - Communications transport standards (to provide specifications for common rules and procedures guidelines that cities and administrations may wish to consider adopting to exchange application data between point 'A' and point 'X' on a network);
  - Subnetwork standards (to define the rules and procedures guidelines that cities and administrations may wish to consider adopting for exchanging data between two 'adjacent' devices over some communications media) Identifying existing standards and widely used technical means (such as DATEX II, XML, FTP, SNMP, SMTP, TCP, UDP, PPP, Ethernet, ASN.1, UTMC, OCA etc.);
- p) Identifying standardisation gaps and providing a list of potential work items to be developed during the early tenure of the Standardization Request (CID) to support and enable cities and administrations to effectively implement Urban-ITS and to enable the functioning of the Single European open market in the Urban-ITS sector;
- q) Identifying any other measures that would be a prerequisite to/or priority for the implementation of Urban-ITS to enable multimodal travel, traffic management and urban logistic aspects.

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**