



SLOVENSKI STANDARD

SIST-TS CEN ISO/TS 17427:2014

01-december-2014

Inteligentni transportni sistemi - Kooperativni sistem - Vloge in odgovornosti v okviru kooperativnega ITS, osnovanega na arhitekturi za kooperativne sisteme (ISO/TS 17427:2014)

Intelligent transport systems - Cooperative systems - Roles and responsibilities in the context of cooperative ITS based on architecture(s) for cooperative systems (ISO/TS 17427:2014)

Intelligente Transportsysteme - Kooperative Systeme - Rollen und Verantwortlichkeiten im Zusammenhang von ITS basierten Architekturen von kooperativen Systemen (ISO/TS 17427:2014)

Systemes intelligents de transport - Systemes coopératifs - Rôles et responsabilités dans le contexte des ITS fondés sur l'architecture de systèmes coopératifs (ISO/TS 17427:2014)

Ta slovenski standard je istoveten z: CEN ISO/TS 17427:2014

ICS:

35.240.60	Uporabniške rešitve IT v transportu in trgovini	IT applications in transport and trade
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SPÉCIFICATION TECHNIQUE
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CEN ISO/TS 17427

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English Version

Intelligent transport systems - Cooperative systems - Roles and responsibilities in the context of cooperative ITS based on architecture(s) for cooperative systems (ISO/TS 17427:2014)

Systèmes intelligents de transport - Systèmes coopératifs -
Rôles et responsabilités dans le contexte des ITS fondés
sur l'architecture de systèmes coopératifs (ISO/TS
17427:2014)

Intelligente Transportsysteme - Kooperative Systeme -
Rollen und Verantwortlichkeiten im Zusammenhang von
ITS basierten Architekturen von kooperativen Systemen
(ISO/TS 17427:2014)

This Technical Specification (CEN/TS) was approved by CEN on 25 February 2014 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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Contents	Page
Foreword.....	3

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[SIST-TS CEN ISO/TS 17427:2014](https://standards.iteh.ai/catalog/standards/sist/ad5b0ecc-00ab-42ab-ae3d-88dda503b472/sist-ts-cen-iso-ts-17427-2014)
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Foreword

This document (CEN ISO/TS 17427:2014) has been prepared by Technical Committee ISO/TC 204 "Intelligent transport systems" in collaboration with Technical Committee CEN/TC 278 "Intelligent transport systems" the secretariat of which is held by DIN.

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The text of ISO/TS 17427:2014 has been approved by CEN as CEN ISO/TS 17427:2014 without any modification.

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**Intelligent transport systems —
Cooperative systems — Roles and
responsibilities in the context
of cooperative ITS based on
architecture(s) for cooperative
systems**

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*Systèmes intelligents de transport — Systèmes coopératifs — Rôles et
responsabilités dans le contexte des ITS fondés sur l'architecture de
systèmes coopératifs*

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Contents

	Page
Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	2
4 Symbols (and abbreviated terms).....	5
5 Introduction and theoretical framework.....	5
5.1 Transferring ODP to roles and responsibilities for C-ITS.....	5
5.2 External Enterprise Objects.....	6
6 Roles and responsibilities.....	8
6.1 Introduction.....	8
6.2 General responsibilities of actors involved in C-ITS.....	9
6.3 Role: System operation.....	10
6.4 Role: Using the service.....	12
6.5 Role: System management.....	12
6.6 Role: Policy framework.....	14
6.7 Profiles.....	15
7 Compliance.....	15
Annex A (informative) Methodology and its sample application.....	16
Annex B (informative) Profiles.....	29
Bibliography.....	45

[SIST-TS CEN ISO/TS 17427:2014](https://standards.iteh.ai/catalog/standards/sist/ad5b0ecc-00ab-42ab-ae3d-88dda503b472/sist-ts-cen-iso-ts-17427-2014)
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ISO/TS 17427:2014(E)**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 204, *Intelligent transport systems*.

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Introduction

Cooperative-ITS (C-ITS) are a promising and remarkable advancement of Intelligent Transport Systems (ITS). Numerous cooperative applications are specified that open up new possibilities to make traffic safer, more efficient and smarter. Technologies are developed and improved to realize and support those new services and applications. But, to finally implement C-ITS and to achieve the benefits of more safety and better mobility, various actors from different industries will have to cooperate with each other in a completely new way. Actors that did not collaborate so far will have to find a way to do so. This requires a precise definition and assignment of behaviours, responsibilities and liabilities. Therefore a general, abstract organizational architecture with the description of the single roles, their behaviour and the corresponding responsibilities is the essential basis for the deployment of C-ITS.

The organizational architecture itself with the description of the roles and responsibilities is a crucial part of the whole C-ITS architecture. The organizational architectural viewpoint has extensive influences on the deployment and implementation of C-ITS.

This document describes the high level roles and responsibilities that enable C-ITS Service provision.

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Intelligent transport systems — Cooperative systems — Roles and responsibilities in the context of cooperative ITS based on architecture(s) for cooperative systems

1 Scope

This Technical Specification describes the (non-actor specific) roles and responsibilities required to deploy and operate Cooperative-ITS (C-ITS). The organizational architecture described in this document is to be used for a fully operational system. The Technical Specification is couched in terms of an organizational or enterprise viewpoint, as defined in ISO/IEC 10746 Open Distributed Processing. [1]

This Technical Specification is applicable to all types of road traffic of all classes. The description of roles is completely technology agnostic and, in terms of C-ITS communication modes, embraces vehicle-vehicle communications, vehicle-infrastructure communications and infrastructure-infrastructure communications.

This Technical Specification provides a methodology for the identification of service specific roles and their corresponding responsibilities based on a process oriented approach. Additionally, the defined methodology is used to identify the roles and responsibilities for C-ITS, in general. Both the methodology, as well as, the roles and responsibilities for C-ITS are deduced from the reference model: Open Distributed Processing (ISO/IEC 10746). [1] Open Distributed Processing offers five viewpoints of which the enterprise viewpoint corresponds with the organizational architecture and the roles and responsibilities.

This Technical Specification separates C-ITS roles into 'external' and 'internal'. Those considered to be internal are all roles set up for the sole purpose of C-ITS and those considered to be external are all roles involved in C-ITS but not set up for the sole purpose of C-ITS.

This Technical Specification describes high-level architectural viewpoint on C-ITS. It can be used as a blueprint when implementing C-ITS and the corresponding organizational structures. The characteristics of C-ITS entail a huge number of data/information exchanges. Therefore, the implementation of the organizational architecture stringently needs to respect privacy and data protection, as defined in ISO/TR 12859 and in the national laws and regulations (where instantiated). Privacy and data protection affect all roles defined in this Technical Specification and due to these characteristics, all actors occupying roles in C-ITS need to respect the corresponding standards and regulations.

2 Normative references

The following referenced documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 10746:1996, *Information technology — Open Distributed Processing — Reference model*

ISO 14817:2002, *Transport information and control systems — Requirements for an ITS/TICS central Data Registry and ITS/TICS Data Dictionaries*

ISO/TS 17419, *Intelligent transport systems — Co-operative systems — Classification and management of ITS applications in a global context*"

ISO/TS 17931, *Intelligent transport systems — Extension of map database specifications for Local Dynamic Map for applications of Cooperative ITS*

ISO/TS 17427:2014(E)

ISO/IEC 19501:2005, *Information technology — Open Distributed Processing — Unified Modeling Language (UML) Version 1.4.2*

ISO 21217:2013, *Intelligent transport systems — Communications access for land mobiles (CALM) — Architecture*

ETSI/TS 102-637:2011, *Intelligent Transport Systems (ITS); Vehicular Communications Basic Set of Applications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply

- 3.1 action**
something which happens
[SOURCE: ISO/IEC 10746-2, see Bibliography reference 2]
- 3.2 actor**
user playing a coherent set of roles when interacting with the system within a particular use case
[SOURCE: ISO 24014-1:2007, see Bibliography reference 6]
- 3.3 application**
mechanism of delivering some or all parts of an ITS service (3.23)
[SOURCE: ISO/TR 17465-1, see Bibliography reference 18]
- 3.4 behaviour**
collection of *actions* (3.1) with a set of constraints on when they may occur
[SOURCE: ISO/IEC 10746-2, see Bibliography reference 2]
- 3.5 community**
configuration of *objects* (3.13) formed to meet an objective
[SOURCE: ISO/IEC 10746-3, see Bibliography reference 3]
- 3.6 cooperative-ITS
C-ITS**
DEPRECATED: cooperative systems
subset of overall ITS that communicates and shares information between ITS stations to give advice or facilitate actions with the objective of improving safety, sustainability, efficiency and comfort beyond the scope of stand-alone systems
Note 1 to entry: As an alternative to a “subset”, cooperative-ITS could be viewed as a “paradigm” in overall ITS.
[SOURCE: ISO/TR 17465-1, see Bibliography reference 18]
- 3.7 enterprise object**
object (3.13) in *enterprise viewpoint* (3.10)

3.8**external enterprise object**

enterprise object (3.7) involved in C-ITS but not set up for the only purpose of C-ITS

[SOURCE: ISO/TS 17574:2009, see Bibliography reference 4]

3.9**internal enterprise object**

complementary to *external enterprise object* (3.8)

3.10**enterprise viewpoint**

a viewpoint on an ODP system and its environment that focuses on the purpose, scope and policies for that system

[SOURCE: ISO/IEC 10746-3, see Bibliography reference 3]

3.11**infrastructure**

system of facilities, equipment and *ITS services* (3.23) that is needed for the operation of an organization

Note 1 to entry: Specifically in the case of C-ITS the most stationary part of C-ITS incorporating sensors, actuators, static *ITS Station(s)* (3.12).

[SOURCE: ISO 9000:2005, see Bibliography reference 7]

3.12**ITS station**

entity in a communication network capable of communicating with other similar entities

Note 1 to entry: From an abstract point of view, the term "ITS station" refers to a set of functionalities. The term is often used to refer to an instantiation of these functionalities in a physical unit. Often the appropriate interpretation is obvious from the context. The proper name of physical instantiation of an ITS-S is ITS station unit (ITS-SU).

[SOURCE: ISO 21217:2010, see Bibliography reference 10]

3.13**object**

model of an entity

Note 1 to entry: An object is characterized by its *behaviour* (3.4) and dually by its state. An object is distinct from any other object. An object is encapsulated, i.e. any change in its state can only occur as a result of an internal *action* (3.1) or as a result of an interaction with its environment.

[SOURCE: ISO/IEC 10746-2, see Bibliography reference 2]

3.14**process**

process that describes a sequence of *actions* (3.1)

Note 1 to entry: A process can also be a set of interrelated or interacting activities which transform inputs into outputs.^[8]

[SOURCE: ISO 9000:2005, see Bibliography reference 7]

3.15**process chain**

sequence of processes (3.14) that wait in the background for an event

Note 1 to entry: Some of these *processes* (3.14) trigger a separate event that can start other *processes* (3.14) in turn

[SOURCE: SAP Help Portal, see Bibliography reference 9]