
**Intelligent transport systems — Public
transport user information —**

**Part 1:
Standards framework for public
information systems**

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*Systemes intelligents de transport — Informations destinées aux
utilisateurs des transports publics —
Partie 1: Cadre pour les normes relatives aux systèmes d'information
publique*

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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).

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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, *Intelligence transport systems*.

ISO 17185 consists of the following parts, under the general title *Intelligent transport systems — Public transport user information*: <https://standards.iteh.ai/catalog/standards/sist/e5d9a4f9-2912-42f9-bb1d-3fb80d3648c2/iso-17185-1-2014>

- *Part 1: Standards framework for public information systems*
- *Part 2: Data and interface standards catalogue and cross reference*
- *Part 3: Use cases for journey planning systems and their interoperation*

Introduction

TC204 Intelligent Transport Systems, WG8, Public Transport and Emergency Services, have been discussing enhancement of surface public transport information provision to surface public transport users including international travellers around the world by using ITS technology.

WG8, Public Transport and Emergency Services, have been trying to harmonize current surface public transport information provision interface national and regional standards, mainly, the TRANSMODEL standard developed by CEN and the TCIP standard developed by the American Public Transportation Association in the USA. However, because these surface public transport information standards are widely accepted and used for system implementation in their regions, there is no perceived need or demand to harmonize them.

Because WG8's responsibility is to make surface public transport more convenient by realizing stress-free surface public transport user information provision, WG8 has reached the conclusion that it has to establish one International Standard (but not a technical report which has no binding rules) which is defining basic framework that will fit above current national and regional standards. The accepted national and regional standards (at this point in time, TCIP and TRANSMODEL) will be allowed to define the specific information interfaces such as data format, stop point numbering system, etc. that are necessary to the implementation of surface public transport information systems.

This part of ISO 17185 will be beneficial for all ISO/CEN member countries, as well as non-ISO/CEN member countries, because this part of ISO 17185 will be a valuable "text book" to detail basic framework, as well as highlight and encourage use of currently available national and regional standards such as TRANSMODEL, TCIP, and possibly others. The intention is that, by deploying these national and regional standards by other countries or regions, duplication of cost and time is avoidable. For those countries that do not have surface public transport information standards, this approach allows more rapid development and deployment of public transport systems that enhance usability and convenience.

This part of ISO 17185 is specifically set at a higher level and not aiming to harmonize currently available national and regional standards to allow the use of these robust standards which are set at various levels (for example, implementation specifications versus application level standards) but which also experience widespread acceptance in their regional standards. This part of ISO 17185 intends to establish a basic solid foundation for surface public transport user information provision framework and is specifically limited to this scope to avoid conflict with those currently available regional standards.

This part of ISO 17185 is intended to be fully consistent with those currently available national and regional standards which might be related to international surface public transport. In fact, in the case of international surface public transport, surface public transport operators already have transport-related information systems. However, it is not often the case that surface public transport users, including international travellers, are provided with static and real-time information including bus/train/tram locations appropriately and timely. This part of ISO 17185, and its scope and approach, will solve this issue by setting basic framework for surface public transport information provision while embracing existing national and regional standards.

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Intelligent transport systems — Public transport user information —

Part 1: Standards framework for public information systems

1 Scope

This part of ISO 17185 defines the framework for the realization of efficient public transport user information provision to surface public transport users including international worldwide travellers.

In the surface public transport user information provision area, a set of regional and national standards have already been established by related regional and national standardizing bodies.

This part of ISO 17185 defines basic framework for user information provision for surface public transport users, from the viewpoint that the surface public transport users should be provided with proper static and real-time information when it is most desired and effective. In order to realize the desirable information provision, surface public transport information has to be efficiently gathered, processed, and provided to surface public transport users in an appropriate way by using currently available regional standards.

This part of ISO 17185 does not aim to define a new part of ISO 17185 that supersedes current regional and national standards related to surface public transport. It aims to define the basic framework of surface public transport user information provision by esteeming existing regional standards and wisely using them. <https://standards.iteh.ai/catalog/standards/sist/e5d9a4f9-2912-42f9-bb1d-3fb80d3648c2/iso-17185-1-2014>

This part of ISO 17185 does not aim to define specific information interfaces such as data format or a stop point numbering system. The currently available regional standards established by regional and national groups are suggested to be applied in that scope.

2 Normative references

The following 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 17185-2, *Intelligent transport system — Public transport user information — Part 2: Data and interface standards catalogue and cross reference*

ISO 17185-3, *Intelligent transport system — Public transport user information — Part 3: Use cases for journey planning systems and their inter-operation*

3 Terms and definitions

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

3.1 data

reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing

Note 1 to entry: Data can be processed by humans or by automatic means. [ISO/IEC 2382-1:1993, (01.01.02)]

ISO 17185-1:2014(E)

Note 2 to entry: Adapted from ISO/IEC 15944.

3.2 database

collection of electronically stored descriptive records or content units (including facts, full texts, pictures, and sound) with a common user interface and software for the retrieval and manipulation of the data

Note 1 to entry: The units or records are usually collected with a particular intent and are related to a defined topic. A database can be issued on CD-ROM, diskette, or other direct-access method, or as a computer file accessed through dial-up methods or through the Internet.

Note 2 to entry: Licensed databases are counted separately even if access to several licensed database products is effected through the same interface.

Note 3 to entry: A common interface providing access to a packet of serials or digital documents, usually offered by a publisher or vendor, is also to be counted as database. Additionally, the single serials or digital documents are counted as serials or digital documents. [ISO 2789:2013, 2.3.10]

Note 4 to entry: Adapted from ISO 9707.

3.3 data model

graphical and/or lexical representation of data, specifying their properties, structure, and inter-relationships

Note 1 to entry: Adapted from ISO/IEC 11179.

3.4 entity

concrete or abstract thing that exists, did exist, or might exist, including associations among these things

EXAMPLE A person, object, event, idea, process, etc.
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standards/sist/e5d9a49-2912-42f9-bb1d-3fb80d3648c2/iso-17185-1-2014

Note 1 to entry: An entity exists whether data about it are available or not. [ISO/IEC 2382-17:1999, (17.02.05)]

Note 2 to entry: Adapted from ISO/IEC 15944.

3.5 fare collection

all activities related to the collection of money from passengers

3.6 framework

structure expressed in diagrams, text, and formal rules which relates the components of a conceptual entity to each other

Note 1 to entry: Adapted from ISO 19439:2006, 3.3.

3.7 function

intended effect of a system, subsystem, product, or part

[SOURCE: EN 1325-1:1997]

Note 1 to entry: Functions should have a single definite purpose. Function names should have a declarative structure (e.g. "Validate telecommands") and say "what" is to be done rather than "how". Good naming allows design components with strong cohesion to be easily derived.

Note 2 to entry: Adapted from ISO 16091.

3.8**functional area**

combination of groups and/or elements in a unit that can be used independently

Note 1 to entry: Adapted from ISO 16952.

3.9**IC**

small piece of semiconductive material that contains interconnected electronic elements

Note 1 to entry: Adapted from ISO/IEC 2382-1.

3.10**logical data model**

data design that takes into account the type of database to be used, but does not consider means of utilization of space or access

3.11**management information**

information utilized by management or produced to serve a management function

Note 1 to entry: Adapted from ISO 6707-2.

Note 2 to entry: In this part of ISO 17185, this term means all activities allowing the company management to collect the information necessary to meet problem-solving needs. Data of operational systems are filtered and aggregated for this purpose and made available to the user interactively or in form of pre-defined reports and summaries. Such functions are, in principle, related to all functional areas of a company, with particular reference to the management of statistical results.

3.12**operations monitoring and control**

all activities related to the transportation process, i.e. real-time functions related to the driving and transportation of passengers according to given instructions, including the monitoring of the driving process and its control in case of deviations, as well as all activities that support the driving process (traffic light priority, track switching, bay selection, advance/delay advice etc.)

Note 1 to entry: Such functions are often assisted by computer-aided tools known as Automated Vehicle Monitoring (AVM).

3.13**passenger information**

activities related to informing the users either on the planned or on the actual transportation services

3.14**personnel disposition**

activities related to the mid-term and short-term management of drivers

3.15**scheduling**

method of controlling the timing of the execution of a scheduled activity within or represented by a managed object

Note 1 to entry: Adapted from ISO/IEC 10164.

Note 2 to entry: In this part of ISO 17185, this term means all activities related to the tactical planning of transportation, splitting into vehicle scheduling, driver scheduling, and rostering.

3.16**use case**

sequence of actions that an actor (usually a person, but perhaps an external entity, such as another system) performs within a system to achieve a particular goal

Note 1 to entry: Adapted from ISO/TR 25102.

4 Symbols and abbreviated terms

AVL	automatic vehicle location
BISON	Beheer Informatie Standaarden OV Nederland, Netherlands public transport information standards management platform
CEN	European Committee for Standardization
DE	Germany
EU	European Union
GPS	global navigation system
IEC	international Electrotechnical Commission
IFOPT	identification of fixed objects in public transport, CEN published standard EN 28701
ISO	International Organization for Standardization
ITS	intelligent transport systems
NaPTAN	national public transport access nodes, GB national system for uniquely identifying all the points of access to public transport in GB
NEPTUNE	French standard (PR NF 99-506) for format describing public transport routes
NeTEx	network exchange, CEN TC278 WG3 standard currently in development with the goal to provide efficient European-wide standard for exchanging public transport schedules and related data https://standards.iteh.ai/catalog/standards/sist/e5d9a4f9-2912-42f9-bb1d-3fb80d3648c2/iso-17185-1-2014
PT	public transport
RTPI	real-time passenger information
SIRI	service interface for real-time information, CEN technical specification (TS 15531)
TCIP	transit communications interface profiles, US standard developed by APTA for introducing advanced ITS technologies into PT to improve safety, security, and efficiency
Transmodel	CEN standard (EN 12896) for reference data model for public transport information which provides an abstract model of common public transport concepts and data structures that can be used to build many different kind of public transport information system, including for timetabling, fares, operational management, real-time data, journey planning, etc.
TransXChange	exchanging bus schedules and related data, GB nationwide standard

5 General Requirement

5.1 Importance of PT user information provision

PT service operator shall play an important role in surface transport as society fully depend upon privately owned cars that has their own limitations such as high environmental impact, increasing number of accidents related to aged drivers, and shrinking economy due to scattered population.

The issue of the current PT to be solved varies country to country or city to city, however, the following common vision can be observed. From the PT service operator's point of view, benefit/cost factor can

be kept high by deploying ITS technologies such as simple and efficient fare transaction device and priority traffic control signal system. From the PT user's (customer) point of view, PT use shall be more attractive than driving his/her own car by improving PT transport speed and reducing PT fare and by providing attractive PT user information to PT users.

When providing PT user information, it is important to understand that there are various types of customers and their needs vary between customer types. In local residents, there are two types of customers, one who does not know how to use PT and the other who knows basic information and understands that PT is reliable transport that is on time and safe. Usually, a visitor is not familiar with local PT and expects physically and mentally friendly PT services. Therefore, PT user information provision framework shall be designed to accommodate those various needs.

Various PT information provision projects are under practical use, and the project status reports are commonly shared internationally to improve PT user information provision system continuously throughout the world.

There are several key issues concerning PT when creating "PT user"-friendly society, namely,

- attractive PT user information provision to potential PT users,
- attractive PT IC fare card system,
- efficient and attractive PT service timetabling and service routes,
- fare relationship between regional transit regulator and PT service operator, and
- reliable relationship between PT drivers and PT service operator by deploying ITS technologies.

Defining basic PT user information provision framework which is commonly acceptable internationally, is indispensable for both of advanced and emerging countries where PT user information provision system improvements are needed.

The PT user information provision service architecture and required standards needed varies country to country. This part of ISO 17185 provides basic framework guidelines which shall be referred when such PT information provision system is implemented.

This part of ISO 17185 describes high-level basic framework requirements for PT user information provisions. For the detailed use cases and data and interface standards catalogues and cross reference, refer to ISO 17185-2 and ISO 17185-3.

5.2 Roles of PT user information

The functional roles of PT user information are summarized as follows. Although the scope of this part of ISO 17185 is PT user information provisions, all of the potential roles are listed for the reader's educational purposes.

- provide PT services using PT vehicles (track vehicles)
- provide planned service information
- provide passenger facility/infrastructure information
- provide real-time service information
- provide topographic and geographic information
- provide PT network information
- provide trip plans to customers
- provide information about disruptions to PT service
 - detours