ILNAS

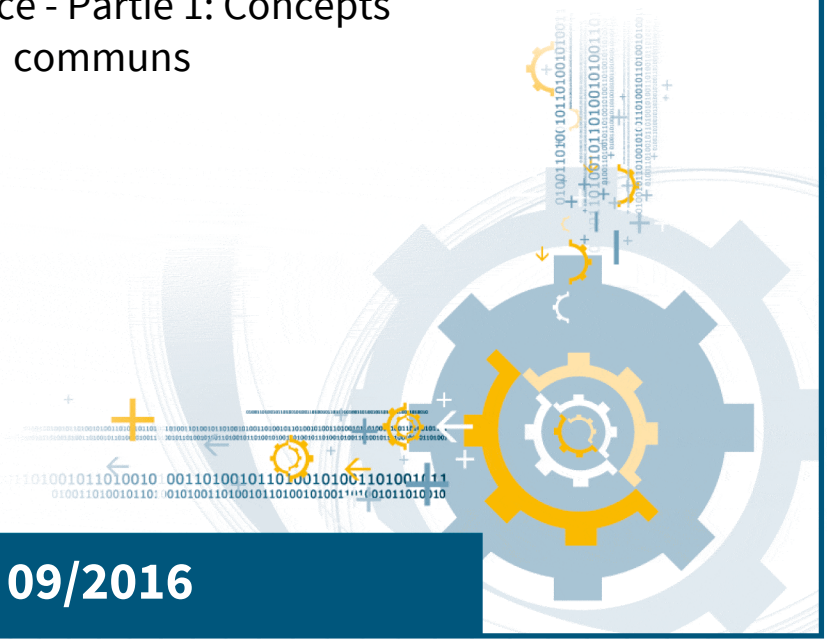
Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 12896-1:2016

Public transport - Reference data model - Part 1: Common concepts

Öffentlicher Verkehr - Datenreferenzmodell - Teil 1: Gemeinsame Konzepte

Transports publics - Modèle de données de référence - Partie 1: Concepts communs



09/2016

National Foreword

This European Standard EN 12896-1:2016 was adopted as Luxembourgish Standard ILNAS-EN 12896-1:2016.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12896-1

September 2016

ICS 35.240.60

Supersedes EN 12896:2006

English Version

Public transport - Reference data model - Part 1: Common concepts

Transports publics - Modèle de données de référence - Partie 1: Concepts communs

Öffentlicher Verkehr - Datenreferenzmodell - Teil 1: Gemeinsame Konzepte

This European Standard was approved by CEN on 5 May 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 12896-1:2016 E

Contents

Page

European foreword

This document (EN 12896-1:2016) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2017, and conflicting national standards shall be withdrawn at the latest by March 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document together with documents EN 12896-2:2016 and EN 12896-3:2016 supersedes EN 12896:2006.

The series comprises the following documents:

Public transport - Reference data model - Part 1: Common concepts

Public transport - Reference data model - Part 2: Public transport network

Public transport - Reference data model - Part 3: Timing information and vehicle scheduling

Public transport - Reference data model - Part 4: Operations monitoring and control

Public transport - Reference data model - Part 5: Fare management

Public transport - Reference data model - Part 6: Passenger information

Public transport - Reference data model - Part 7: Driver management

Public transport - Reference data model - Part 8: Management information and statistics

Together these create version 6 of the European Standard EN 12896, known as “Transmodel” and thus replace Transmodel V5.1.

The split into several documents is intended to ease the task of users interested in particular functional domains. Modularisation of Transmodel undertaken within the NeTEx project has contributed significantly to this new edition of Transmodel.

In addition to the eight Parts of this European Standard an informative Technical Report (Public Transport – Reference Data Model – Informative Documentation) is also being prepared to provide additional information to help those implementing projects involving the use of Transmodel. It is intended that this Technical Report will be extended and republished as all the eight parts are completed.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

0 Introduction

0.1 Rationale for the Transmodel Standard

Public transport services rely increasingly on information systems to ensure reliable, efficient operation and widely accessible, accurate passenger information. These systems are used for a range of specific purposes: setting schedules and timetables, managing vehicle fleets, issuing tickets and receipts, providing real time information on service running, and so on.

This standard will improve a number of features of public transport information and service management: in particular, the standard will facilitate interoperability between information processing systems of the transport operators and agencies by using similar definitions, structures and meanings for their data for the systems being part of one solution. This applies both to connecting different applications within an organization, and also to connecting applications between interworking organizations (for instance, a public authority and a transport operator).

The Transmodel standard presented in this European Standard provides a framework for defining and agreeing data models, and covers the whole area of public transport operations. By making use of this European Standard, and of data models derived from it, it will be possible for operators, authorities and software suppliers to work together much more easily towards integrated systems. Moreover, the breadth of the standard will help to ensure that future systems' developments can be accommodated with the minimum of difficulty.

0.2 Use of the Transmodel Standard

This European Standard presents version **6.0** of the European Standard EN 12896, known as "Transmodel". Transmodel **6.0** is a reference standard which provides a conceptual data model for use by organizations with an interest in information systems for the public transport industry.

As a reference standard, it is not necessary for individual systems or specifications to implement Transmodel as a whole.

It needs to be possible to describe (for those elements of systems, interfaces and specifications which fall within the scope of Transmodel):

— the aspects of Transmodel that they have adopted;

— the aspects of Transmodel that they have chosen not to adopt.

Transmodel may prove of value to:

— organizations within the public transport industry that specify, acquire and operate information systems;

— organizations that design, develop and supply information systems for the public transport industry.

For an organization within the public transport industry wishing to specify, acquire and operate information systems, Transmodel may be distilled, refined, or adapted to form a comprehensive data model for the organization. This will enable the organization to specify its database structures and/or its system interfaces, in such a way that separate modules can be openly tendered but will still integrate easily. The organization also has a greater likelihood that information exchange interfaces with external organizations will be easily achieved.

For an organization wishing to design, develop and supply information systems for the public transport industry, Transmodel may be distilled, refined, or adapted to form a comprehensive data model for the product suite. This will enable the organization to develop its products in such a way that separate

modules will integrate easily, but also so that they may be sold separately to clients seeking Transmodel-compliant systems.

Transmodel is a large and complex model, and allows for great flexibility. Consequently it takes some skills and resource to apply it effectively in order to develop the physical data model and its implementations for a particular aspect, e.g. one particular functional domain, such as vehicle scheduling or fare management or for a particular interface, as between a ticket machine and a management system, or a particular organizational boundary, as between two connecting transport operators.

For such situations, Transmodel provides a wider setting and a starting point. The specific elements of Transmodel have to be refined, attributes and data formats will have to be completed, for a specific sub-model of the Transmodel data model. The resulting specification, although specific, will facilitate the built of a coherent overall systems framework, since it will coexist more readily with other Transmodel-based specifications.

For all of these potential users, the adoption of Transmodel as a basis for development means that a common language is being used. Thus, users will understand and assess the claims of suppliers better, and specification developers will be more likely to be working in alignment with each other.

0.3 Applicability of the Transmodel Standard

0.3.1 General

Transmodel may be applied to any framework for information systems within the public transport industry, but there are three circumstances to which it is particularly suited:

— specification of an organization's 'information architecture';

— specification of a database;

— specification of a data exchange interface.

0.3.2 Specification of information architecture

An 'information architecture' refers to the overall structure of information used by an information system, which is used to determine:

— the structure of data held in system databases;

— the structure of data exchanged across interfaces between systems.

It may be used as a strategic guide to system planning and evolution, and as the basis for the specification and acquisition of individual systems.

An information architecture made up of independent modules with well-defined interfaces is easier to maintain. A malfunctioning module can be taken out of service or completely replaced without disrupting the rest of the system. This is particularly beneficial for online or safety critical systems. The modules can also be more easily reconfigured on to hardware located elsewhere on the network to fit in with changes in organizational arrangements for managing the business and data administration processes.

The information architecture itself should be evaluated from time to time to make sure that it is still meeting the needs of the organization. Technological changes in communications and computing are continuously bringing forward new opportunities for evolving the systems supporting the business.