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Intelligent transport systems — Systems architecture — Harmonization of ITS data concepts

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National foreword

This Published Document is the UK implementation of ISO/TR 25100:2012. It supersedes PD ISO/TR 25100:2008 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/278, Road transport informatics.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Terms, definitions and abbreviated terms 1
2.1 Terms and definitions 1
2.2 Abbreviated terms 2

3 Background issues 4
3.1 Proprietary data concepts 4
3.2 Semantic differences 4
3.3 Structural differences 4
3.4 Difficulty of application of existing data concepts 5
3.5 Report of investigation 5

4 Harmonisation – General discussion 5
4.1 Introduction to harmonisation 5
4.2 Illustration of the need for harmonisation 5
4.3 Challenges in harmonisation 6
4.4 Harmonisation processes 7
4.5 Steps in the harmonisation process 10
4.6 Other work related to harmonisation 11

5 Current approaches to harmonisation in ITS international standards 11
5.1 Four approaches 11
5.2 ISO 14817 harmonisation 12
5.3 ISO/IEC 20943 approach 13
5.4 TBG17 Business process & core components 14
5.5 Highways Agency (UK) – Core Components Analysis of the ITS Metadata Registry 16

6 Harmonisation approach for designers of data specifications 24
6.1 Where there are relevant core components in a metadata registry or library 24
6.2 Where there is no relevant registry using core components 25

7 Harmonisation as a means to improve efficiency 25

8 Conclusions and recommendations 26

Annex A (informative) **Conventions for precise core component mappings** 28

Bibliography 33

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.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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.

ISO/TR 25100 was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

This second edition cancels and replaces the first edition (ISO/TR 25100:2008). Clause 6 onwards has been technically revised.

Introduction

The objective of this Technical Report is to provide user guidance for the harmonisation of data concepts where there are similarities in definitions, including semantics.

Harmonisation has been discussed by several groups and some preliminary guidance and principles for the effective harmonisation of data concepts for Intelligent Transport Systems [ITS] has already emerged.

It should be clearly recognised that harmonisation is not essential for interoperability, which can usually be achieved given sufficient investment of knowledge and resources. Nevertheless this generally leads to duplication and other unnecessary, futile and even useless work being undertaken. This also assumes that there is an unlimited resource available to achieve the desired interoperability, whereas in practice, time, budget and shortage of skilled resources often cause compromise. Additionally, interoperability in one aspect is sometimes achieved by the lack or loss of interoperability in another. Harmonisation is intended to reduce the nugatory work, increase efficiency and thereby reduce the incidence of errors and faults.

This Technical Report describes a proposed process for harmonisation of data concepts to arrive at preferred definitions for use in formal standards, specifications, technical reports and information models. The proposal is based on consideration of a harmonisation process used by international groups involved in transport and logistics information and control systems.

Harmonisation provides a means to improve efficiency and effectiveness of ITS, by helping to remove duplication, inefficiency, ambiguity and confusion, and thereby improve clarity, comprehension, safety and efficiency.

Intelligent transport systems — Systems architecture — Harmonization of ITS data concepts

1 Scope

This Technical Report provides guidance on the harmonisation of data concepts that are being managed by data registry and data dictionaries such as those described in ISO 14817:2002.

This Technical Report describes processes for harmonisation of such data concepts to arrive at preferred definitions for use in formal standards, specifications, technical reports and information models. It is based on consideration of a harmonisation process used by international groups involved in the ITS sector and in the wider sector of transport and logistics information and control systems.

2 Terms, definitions and abbreviated terms

2.1 Terms and definitions

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

2.1.1
attribute
data concept that represents a single property of an entity

2.1.2
data concept
definition of a kind of data representing a concept in the subject domain that can be identified with explicit boundaries and meaning and whose properties and behaviour all follow the same rules

NOTE This Technical Report assumes that data concepts, however they are represented, may have structure, such that individual property definitions are grouped into aggregate entities representing larger-grained concepts in the subject domain, and these entities may have relationships to one another; this basic idea is common to most description languages and metamodels including UML, XML and entity-relationship notations.

2.1.3
entity
data concept that may have attributes and relationships to other entities

NOTE This Technical Report follows common usage of the term “entity” where the words “entity kind” or “entity class” would be more accurate.

2.1.4
harmonisation of data concepts
process of reconciling differences in semantics, structure and syntax of similar data concepts

NOTE Harmonisation may include the establishment of a single pervasive definition for each data concept (i.e. standardization), but can also encompass flexible approaches in which definitions can be understood to grow closer without becoming identical.