



DPC: 25/30501148 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

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Part 1: Role model.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 23098-1

Sustainable mobility and transportation — Mobility monitoring and services by data sharing platform —

Part 1: Role model

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ISO/TC 268/SC 2

Secretariat: JISC

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2025-11-10

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
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Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols (and abbreviated terms)	2
5 Gap and overlap analysis	2
6 Mobility provisioning service classification and service evolution	2
6.1 Service classification of mobility service	2
6.2 Service evolution of mobility service	3
7 Mobility monitoring led to sustainable mobility service provisioning	4
8 Shared data platform support for mobility service role and functional model	4
9 Role and function model	5
9.1 Objective	5
9.2 National variations	5
9.3 Basic role model architecture	5
9.3.1 Smart city sensor data	6
9.3.2 3D HD point cloud map	6
9.3.3 Digital infrastructure	7
9.3.4 Mobility supporting facilities	7
9.3.5 Physical infrastructure	7
9.3.6 Mobility service provider	7
9.3.7 Communications	7
9.3.8 Mobility users	7
9.4 Application layer role and functional model for mobility system	8
9.4.1 Role and functional model options	10
9.4.2 Certification of service providers	10
9.5 Mobility service role and functional model	10
9.5.1 General	10
9.5.2 Mobility service control centre	10
9.5.3 Mobility service user with nomadic device	11
9.5.4 Transport provider	11
9.5.5 Service vehicle	11
9.5.6 Service mobility recorder	11
9.5.7 Service vehicle owner	11
9.5.8 Vehicle inspection/certification authority	11
9.5.9 First responders (Police/Fire fighters)	11
9.5.10 Service supporting infrastructure facilities (Physical and digital)	11
9.5.11 Regulator	12
9.5.12 Regional transport authority	12
9.5.13 SCMS (Security credential management system)	12
9.5.14 Traffic management centre	12
10 Definition of service domains utilizing data sharing platform	12
10.1 Referenced target use cases	12
10.1.1 Infrastructure operation management	14
10.1.2 Traffic Management	15
10.1.3 Road traffic management	16
10.1.4 Enforcement	16
10.1.5 The role of service providers	17
Annex A (informative) Mobility monitoring and services by data sharing platform examples	22

Bibliography	24
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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 conducted 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 several 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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 268 /SC 2, Sustainable mobility and transportation.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The role of TC268/SC2 is to create necessary standards to create/implement/manage/operate/maintain efficient sustainable mobility and transportation for smart city and communities by utilizing already created standards by ISO/TC22/TC204/TC211/TC269, IEC/TC9/TC69 and OGC (Open Geospatial Consortium). The standards created by the TC268/SC2 are not superseding those standards created by those TCs but are complement to those standards.

To create/implement/manage/operate/maintain sustainable mobility and transportation for smart city and communities by utilizing already created standards by ISO/TC22/TC204/TC211/TC269, IEC/TC9/TC69 and OGC (Open Geospatial Consortium), there are gaps which are needed to be filled by the standards created by TC268/SC2.

Standardization of the service role and functional model is necessary for the introduction of the overall mobility services to support land/water/air mobility users using as a means of moving people, goods, and services in smart cities and communities including urban and rural areas in the mode on land (road and guided way), on water and in the air.

For automated mobility, ISO 16499 part 1 is under development and it defines the role model for automated mobility.

However, there are several standards describing mobility services but none of them are discussing overall service role and functional model, and this document is to describe such role model so that it can contribute to guide the international standard users to create more efficient services without inventing new wheels. This document makes international standard users to be realized where users are working solving issues in the whole mobility service system which utilizes the physical and digital infrastructure in the smart cities and communities.

There are business use cases regarding the mobility services currently emerging and more variations are coming to be deployed. Various role and functional model presentation methodologies are possible to be used and there is a need to have common understandable role and functional model presentation document. This document describes common service role and functional model presentation. Future emerging business use cases can refer this document as baseline document. This document does not hinder the development of future business cases but assists them.

ISO23098 series of standards comprises ISO 23098-1 Sustainable mobility and transportation – Mobility monitoring and services by data sharing platform Part1: Role model, Part2: unregulated service, Part3: Regulated service and Part4: Supplement role for regulated service.

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ISO takes no position concerning the evidence, validity, and scope of this patent right.

The holder of this patent right has assured ISO that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO. Information may be obtained from the patent database available at www.iso.org/patents.

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Sustainable mobility and transportation — Mobility monitoring and services by data sharing platform —

Part 1: Role model

1 Scope

This document describes a basic role model of smart city mobility monitoring and services by data sharing platform as a common platform for smart city instantiation. It provides a paradigm describing:

- a) a framework architecture for the provision of a mobility monitoring service
- b) a description of the concept of operations, and the role models
- c) a conceptual architecture between actors involved in the provision/receipt of mobility monitoring service applications
- d) references for the key documents on which the architecture is based
- e) a taxonomy of the organization of generic procedures. scope is specialized in defining the requirements of the basic role and functional model of service for the introduction of mobility monitoring services including infrastructure facilities to support mobility in urban and rural areas.

In-vehicle control system is not in scope of this document.

This document describes the scope limited to the mobility monitoring services using physical and digital infrastructure.

The physical infrastructure facilities are, for example, battery charging facility, dynamic charging facility for battery electric vehicle, physical infrastructure markings, physical traffic regulation signs, mobility monitoring facility, emergency responding service support facility, traffic operation control centre facility, fee collection service facility such as road usage fee, battery EV charging facility, online reservation and online mobility usage fee payment facility, bus stations at starting/terminal and interchange points and the passenger facilities there, such as eateries and first-aid points and other infrastructure platform facility to support mobility monitoring services. This document can contribute to the development of future mobility monitoring service business cases other than system service described within this document.

The digital infrastructure (DI) is a data sharing platform, and it houses smart city sensor data, static, semi-dynamic and dynamic, and those are automatically structured onto 3D HD map by the support of AI (artificial intelligence) and other automated data aggregation tools. The sensor data collected have different timing, unit, format, and therefore such automated tools are suggested to be employed.

This architecture could be extended to be used for other mobility services such as MoD (mobility on demand) and MaaS (mobility as a service) in smart cities.

2 Normative references

The following document is referred to in the text in such a way that some or all their content constitutes requirements of this document.

ISO/TR 4445, *Intelligent transport systems — Mobility integration — Role model of ITS service application in smart cities*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Symbols (and abbreviated terms)

AI	artificial intelligence
EV	electric vehicle
SCMS	security credentials management system

5 Gap and overlap analysis

The currently published following standards created by TC268 are for mechanisms for data linkage of overall city data. This document is for regulated and non-regulated services based upon those data linkages. Therefore, there are no overlaps with those standards which are complementary to this document.

- ISO 37156:2020: Smart community infrastructures — Guidelines on data exchange and sharing for smart community infrastructures
- ISO 37170:2022: Smart community infrastructures — Data framework for infrastructure governance based on digital technology in smart cities
- ISO/TS 37172:2022: Smart community infrastructures — Data exchange and sharing for community infrastructures based on geographic information

6 Mobility provisioning service classification and service evolution

The mobility service classification and service evolution vision are described at this clause to make it understandable the current development and deployment situation of mobility service.

The purpose of these tables is for readers to understand the current development and deployment situation of mobility services.

6.1 Service classification of mobility service

Service classification suggestion is shown in the [table 1](#) below.

Service covers vast use cases as described in this table including carrying people and goods, urban and rural use, normal mobility uses, and emergency mobility use such as pandemic/lockdown where human driving mobility could not be usable for moving peoples and goods.