International Standard

ISO 23098-1

First edition
2026-11

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

Part 1: Role model

Sample Document

Mobilité et transport durable — Suivi de la mobilité et services par plate-forme de partage de données —

Partie 1: Modèle de rôle

standards.iteh.ai

Reference number
ISO 23098-1:2026(en)

© ISO 2026

ISO 23098-1:2026 • https://standards.iteh.ai/catalog/standards/iso/51231526-1db4-424f-9ddb-104319c9233f/iso-23098-1-2026

Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO 2026

All rights reserved.

This ISO publication is protected by copyright and is owned by ISO and/or its licensors.

The content of this ISO publication is provided under licence, not sold. Use is subject to the applicable licence terms issued by ISO, an ISO member body, or an authorized third-party distributor.

Except as required for implementation or expressly permitted by a separate licence, no part of this ISO publication may be reproduced, distributed, modified, used, or made available in any form or by any means – electronic or mechanical, including photocopying, scanning, recording, or posting on internal or external digital platforms.

Any use beyond the scope of the granted rights is prohibited and may result in legal action.

ISO copyright office
CP 401 • CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

ISO 23098-1:2026 • https://standards.iteh.ai/catalog/standards/iso/51231526-1db4-424f-9ddb-104319c9233f/iso-23098-1-2026

Contents

Page

Foreword ..... **v**
Introduction ..... **vi**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Abbreviated terms **1**
5 Gap and overlap analysis **2**
6 Mobility provisioning service classification and service evolution **2**
6.1 General 2
6.2 Service classification of mobility service 2
6.3 Service evolution of mobility service 2
7 Mobility monitoring leads to sustainable mobility service provisioning **3**
8 Shared data platform support for mobility service role and functional model **4**
9 Role and function model **4**
9.1 Objective 4
9.2 National variations 5
9.3 Basic role model architecture 5
9.3.1 General 5
9.3.2 Smart city sensor data 5
9.3.3 3D HD point cloud map 6
9.3.4 Digital infrastructure 6
9.3.5 Mobility supporting facilities 6
9.3.6 Physical infrastructure 6
9.3.7 Mobility service provider 7
9.3.8 Communications 7
9.3.9 Mobility users 7
9.4 Application layer role and functional model for mobility system 7
9.4.1 General 7
9.4.2 Role and functional model options 10
9.4.3 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 10
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 and certification authority 11
9.5.9 First responders (police and 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 Security credentials management system (SCMS) 12
9.5.14 Traffic management centre 12
10 Definition of service domains utilizing the data sharing platform **12**
10.1 General 12
10.2 Referenced target use cases 13
10.2.1 General 13
10.2.2 Infrastructure operation management 14
10.2.3 Traffic Management 15

Sample Document
Get the document from standards.iteh.ai

© ISO 2026 – All rights reserved

ISO 23098-1:2026 • https://standards.iteh.ai/catalog/standards/iso/51231526-1db4-424f-9ddb-104319c9233f/iso-23098-1-2026

10.2.4 Road traffic management 15
10.2.5 Enforcement 16
10.2.6 The role of service providers 17

Annex A (informative) **Mobility monitoring and services by data sharing platform examples** **20**

Bibliography **23**

Sample Document

get full document from standards.iteh.ai

© ISO 2026 – All rights reserved

ISO 23098-1:2026 • https://standards.iteh.ai/catalog/standards/iso/51231526-1db4-424f-9ddb-104319c9233f/iso-23098-1-2026

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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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.

Sample Document

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

A list of all parts in the ISO 23098 series can be found on the ISO website

get full document from standards.iteh.ai

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.

© ISO 2026 – All rights reserved

ISO 23098-1:2026 • https://standards.iteh.ai/catalog/standards/iso/51231526-1db4-424f-9ddb-104319c9233f/iso-23098-1-2026

Introduction

To achieve sustainable mobility and transportation for smart cities and communities using the International Standards already developed by ISO, IEC and the Open Geospatial Consortium (OGC), there remain gaps that need to be addressed through new International Standards on sustainable mobility and transportation.

International standardization of service roles and functional models is essential for the deployment of comprehensive mobility services supporting users across land, water and air modes. These services facilitate the movement of people, goods and resources within both urban and rural environments, including roads, guided ways, waterways and airspaces.

ISO 16499-1 defines the role model for automated mobility.

Although several International Standards address aspects of mobility services, none currently define an overall service role and functional model. This document aims to describe such a model to guide international standard users in developing more efficient services without reinventing existing solutions. It aims to help users understand how their work contributes to addressing challenges across the entire mobility service ecosystem, leveraging both physical and digital infrastructure in smart cities and communities.

As various business use cases for mobility services continue to emerge and diversify, different methodologies for presenting role and functional models may be used. Therefore, there is a need for a commonly understood framework for representing these models. This document provides a common reference for service role and functional model presentation, which future business cases can adopt as a baseline. It does not constrain the development of new business models but rather supports and facilitates them.

The ISO 23098 series includes:

— ISO 23098-1

— ISO 23098-2[1)]

— ISO 23098-3[2)]

— ISO 23098-4[3)]

Sample Document
get full document from standards.iteh.ai

1) Under preparation. Stage at the time of publication: ISO/CD 23098-2:2026.

2) Under preparation. Stage at the time of publication: ISO/DIS 23098-3:2026.

3) Under preparation. Stage at the time of publication: ISO/DIS 23098-4:2026.

© ISO 2026 – All rights reserved

ISO 23098-1:2026 • https://standards.iteh.ai/catalog/standards/iso/51231526-1db4-424f-9ddb-104319c9233f/iso-23098-1-2026

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 or 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. It defines 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 within the scope of this document.

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

Sample Document
Get full document from standards.iteh.ai

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology 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 Abbreviated terms

AI	artificial intelligence
EV	electric vehicle
SCMS	security credentials management system

© ISO 2026 – All rights reserved

ISO 23098-1:2026 • https://standards.iteh.ai/catalog/standards/iso/51231526-1db4-424f-9ddb-104319c9233f/iso-23098-1-2026

5 Gap and overlap analysis

The following International Standards are for mechanisms for the 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 international standards, which are complementary to this document.

— ISO 37156

— ISO 37170

— ISO/TS 37172

6 Mobility provisioning service classification and service evolution

6.1 General

The mobility service classification and service evolution vision are described in this clause to explain the current development and deployment situation of mobility services.

The purpose of the tables in 6.2 and 6.3 is to inform readers about the current development and deployment situation of mobility services.

6.2 Service classification of mobility service

Service classification suggestions are shown in Table 1 below.

Service covers vast use cases as described in Table 1, including carrying people and goods, urban and rural use, normal mobility uses, and emergency mobility use, such as during a pandemic or lockdown, where human driving mobility cannot be used for moving people and goods.

Sample Document
get full document from standards.iteh.ai

Table 1 — Service classifications

Modes of mobility	Mobility for people	Mobility for goods (including services)	Mobility for freight	Urban use (Last/first mile use)	Rural area use [replacing ordinary public transport (PT)]	Used under pandemic status	Used under emergency
Guideway	A	A	A	A	A	A	A
Highway	A	A	A	A	A	A	A
Water	A	A	A	A	A	A	A
Air	A	A	A	A	A	A	A
Key A Applicable							

6.3 Service evolution of mobility service

The expected service evolution is shown in Table 2 below. The deployment of the current service is for limited use as the safety function and emergency case manoeuvring ability are not qualified as sufficiently safe and reliable. However, the mobility system will evolve to a fully functional system in the future. As this is anticipated, the mobility system service role and functional model of the mobility system, which defines fully automated functions, is described.

Table 2 and Table 3 show where a current mobility service is within the full automation paradigm.

© ISO 2026 – All rights reserved

ISO 23098-1:2026 • https://standards.iteh.ai/catalog/standards/iso/51231526-1db4-424f-9ddb-104319c9233f/iso-23098-1-2026

Table 2 — Mobility service evolution (current)

Service type	Public transport use (PT)	Shared and personal use (Robot taxi)	Demand managed use	Integration with other modes of transport
Mobility for people	C	C	C	F
Mobility for goods	C	C	C	F
Dedicated lane use	C	C	C	F
General lane use	C	C	C	F
General services purposes	F	F	F	F
Key				
C Current emerging status				
F Future emerging status: reaching fully connected and automated mobility status				

Table 3 — Mobility service evolution (future)

Service type	Public transport use (PT)	Shared and personal use (Robot taxi)	Demand managed use	Integration with other modes of transport	
Mobility for people	F	F	F	F	
Mobility for goods	F	F	F	F	
Dedicated use area or Mixed use area	F	F	F	F	
General services purposes	F	F	F	F	
Key					
F Future emerging status: reaching fully connected and automated mobility status					

Sample Document
get full document from standards.iteh.ai

7 Mobility monitoring leads to sustainable mobility service provisioning

The concept of mobility monitoring for providing mobility services involves the use of a data sharing platform to gather and analyse data related to transportation and mobility. This platform acts as a central hub for collecting information from various sources, such as connected vehicles, public transportation systems, GPS devices, mobile apps and other relevant sources.

This is an overview of how the mobility monitoring concept works:

Data collection: The data sharing platform collects data from different mobility sources, including vehicles, transportation infrastructure and user devices. These data can include real-time location data, vehicle speed, traffic conditions, public transportation schedules, user preferences and other relevant information.

Data integration: The collected data are integrated and organized within the platform, ensuring that they can be easily accessed and analysed. This can involve data cleansing, international standardization and transformation processes to create a unified data set.

Analysis and insights: The platform utilizes various analytical techniques, such as data mining, machine learning and statistical modelling, to extract valuable insights from the integrated data. These insights can help identify patterns, trends, and anomalies related to mobility, allowing for better decision-making and optimization of services.

© ISO 2026 – All rights reserved

ISO 23098-1:2026 • https://standards.iteh.ai/catalog/standards/iso/51231526-1db4-424f-9ddb-104319c9233f/iso-23098-1-2026