
**Intelligent transport systems —
Mobility integration — Enterprise
view**

*Systèmes de transport intelligents - Intégration des services de la
mobilité - Vue globale des rôles des organisations et des relations avec
les utilisateurs*

This document is a preview generated by ELS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

Published in Switzerland

Contents

	Page
Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Abbreviated terms.....	2
5 Mobility service and transport service.....	2
5.1 Mobility service.....	2
5.2 Transport service.....	3
6 The core enterprise objects in the provision and use of mobility services.....	4
6.1 Overview.....	4
6.2 Mobility service user responsibilities.....	5
6.3 Mobility service provider responsibilities.....	7
6.4 Transport service provider responsibilities.....	8
7 Regulating, governing and supporting enterprise objects.....	9
7.1 Regulator.....	9
7.1.1 Overview.....	9
7.1.2 Regulator responsibilities.....	11
7.2 ICT service providers.....	12
7.2.1 Overview.....	12
7.2.2 ICT service provider responsibilities.....	13
7.3 Transport infrastructure operator.....	15
7.3.1 Overview.....	15
7.3.2 Transport infrastructure operator responsibilities.....	16
7.4 Payment service provider.....	16
7.4.1 Overview.....	16
7.4.2 Payment service provider responsibilities.....	17
Bibliography.....	19

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).

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 204, *Intelligent transport systems*.

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

Urbanization, changes in climate and demographic and societal changes are some of the major trends that have had an impact on transport systems and services over the last decades. Combined with the implementation of ITS services and Internet of Things (IoT), new transport concepts have been developed. User requirements on efficiency, availability and interoperability have also been driving forces for new transport concepts for the integration of multimodal, existing and new transport services as described and implemented in mobility concepts like Mobility as a service (MaaS) and Mobility on Demand (MOD). Cooperative, connected and automated mobility (CCAM) will also have a significant effect on how travellers plan and implement their journeys between multiple modes of transport in the integrated mobility environment.

Integrated mobility concepts are evolving around the world, mostly based on the MaaS and MOD concepts. Hence, there is a need for a generic, common and world-wide concept description mapping all existing and foreseen concepts for interoperable, integrated and seamless multimodal transport services.

The role and responsibility models for MaaS and MOD have already been described in ISO/TR 4447, but there is also a need for a common role and responsibility model for integrated and multimodal mobility services, recognizing and including the work already done by the two mainstream organizations for integrated mobility services, MaaS and MOD. A common role and responsibility model can be described from an enterprise view^[3] where the stakeholders, actors and roles in the MaaS/MOD ecosystem are merged into one enterprise view. The enterprise view addresses the relationships between the entities (e.g. organizations) involved in the provision of the mobility services. However, there is also a need for enhancing the MaaS and MOD models to include more services, e.g. security services, certification services and interoperability management. The following documents have been used for the enhancement of the common MaaS/MOD model (ecosystem):

- ISO 24014-1 on interoperable fare management;
- ISO 17573-1 on electronic fee collection;
- ISO/TR 21724-1 on common transport service account systems;
- EN 12896-5 on public transport fare management.

The objective of this document is to describe integrated mobility from an enterprise view to which existing implementations of integrated mobility systems can potentially be mapped. This is intended to enable a common understanding, an exchange of information and knowledge, and a convergence towards one world-wide integrated mobility concept description.

Intelligent transport systems — Mobility integration — Enterprise view

1 Scope

This document describes the enterprise view (see ISO/TS 14812:2022, 3.1.4.3) of integrated mobility based on the role and responsibility models in the mobility as a service (MaaS) and mobility on demand (MOD) ecosystems as described in ISO/TR 4447. Other ISO documents (e.g. ISO 24014-1, ISO 17573-1 and ISO/TR 21724-1) have been reviewed in order to enhance and merge the MaaS and MOD role models.

The enterprise view addresses the relationships between organizations and users, and the roles those entities play in the delivery and consumption of mobility services. Relationships between entities are dependent on the roles those entities take in the delivery of user services.^[3]

Enterprise objects interact to exchange information, manage and operate systems beyond the scope of one organization. The enterprise view focuses on the relationships between those enterprise objects, but also defines how enterprise objects interact with physical objects, which appear in the enterprise view as "resources".

This document focuses on mobility service concepts where the included transport services are publicly available. Examples of such transport services are listed in [Clause 3](#).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/TS 14812, *Intelligent transport systems — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 14812 and the following apply.

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/>

3.1

mobility service

service that provides an integrated interface for multiple transport services

Note 1 to entry: The integrated interface can include an online interface, a payment interface, and/or rules for physically accessing the various transport services.

Note 2 to entry: The typical goal of a mobility service is to fulfil the needs of a transport user in an optimal fashion, even if that requires using multiple transport services.

3.2

mobility service provider

entity that delivers one or more mobility services