



Technical Report

ISO/IEC TR 25005-2

Information technology — Data use in smart cities —

Part 2: Use case analysis and common considerations

*Technologies de l'information — Utilisation de données dans les
villes intelligentes —*

Partie 2: Analyse des cas d'utilisation et considérations générales

**First edition
2025-10**



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2025

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	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	2
5 Methods for collecting use cases of data use in smart cities	3
5.1 Use case template structure and description	3
5.1.1 Structure of use case template	3
5.1.2 Description of use case template	3
5.2 Use cases selecting criteria	3
6 Methods of use case analysis of data use in smart cities	4
6.1 Key variables in considerations for analysis of data use	4
6.2 Framework for analysing use cases of data use in smart cities	4
6.3 Process of use case analysis	6
7 Common considerations about data use in smart cities	8
7.1 Overview	8
7.2 General	8
7.3 Considerations for data availability	12
7.3.1 Application scenarios	12
7.3.2 Stakeholders	13
7.3.3 Types of data used	14
7.3.4 How those data are used	15
7.3.5 Challenges, difficulties, and problems	16
7.3.6 Strategies and solutions	16
7.4 Considerations for data quality assurance	17
7.4.1 Application scenarios	17
7.4.2 Stakeholders	18
7.4.3 Types of data used	19
7.4.4 How those data are used	19
7.4.5 Challenges, difficulties, and problems	20
7.4.6 Strategies and solutions	20
7.5 Considerations for ease of data use	21
7.5.1 Application scenarios	21
7.5.2 Stakeholders	22
7.5.3 Types of data used	22
7.5.4 How those data are used	23
7.5.5 Challenges, difficulties, and problems	23
7.5.6 Strategies and solutions	24
7.6 Considerations for data use security	24
7.6.1 Application scenarios	24
7.6.2 Stakeholders	25
7.6.3 Types of data used	26
7.6.4 How those data are used	26
7.6.5 Challenges, difficulties, and problems	27
7.6.6 Strategies and solutions	27
7.7 Considerations for data-enabled innovation	28
7.7.1 Application scenarios	28
7.7.2 Stakeholders	29
7.7.3 Types of data used	30
7.7.4 How those data are used	30
7.7.5 Challenges, difficulties, and problems	31

7.7.6	Strategies and solutions.....	31
Annex A	(informative) Unified use case template for data use in smart cities.....	33
Annex B	(informative) List of collected use cases of data use in smart cities.....	35
Annex C	(informative) Variable code information	43
Annex D	(informative) Example of use case analysis from UC 18 to UC 23	44
Bibliography		56

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 document 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.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

A list of all parts in the ISO/IEC 25005 series can be found on the ISO website.

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

This document aims to provide common considerations about data use in smart cities based on the analysis of collected use cases.

The objectives and implications of this document are:

- to support effective, sustainable, comprehensive and innovative use of data as city-wide strategic resources for better performance, operation, service and sustainability of city;
- to support human-centred standardization collaboration on data use for better harmonization, connectivity, interoperability and reusability of data as strategic resources and assets in digital transformation of city;
- to synthesize common considerations that enable data availability, data usefulness, data connectivity, data security, and data enabled intelligent predictions and actions from city wide multi-stakeholder's interests from collected use cases;
- to collect good practices that enable mapping, building, operating, assessing and continuous improvement of data use in ICT development and application, investment, procurement, monitoring, auditing and performance assessment;
- to improve digital enhancement of total capabilities of data use and evidence-based decision making in smart cities such as data use for public health emergency and control across multi-dimensions, multi-domains, multi-layers and multi-regions;
- to support data-based and data-driven and data-enabled ICT development and application in smart cities including but limited to digital governance, legal governance, data quality governance, ICT governance, data security governance, smart governance;
- to support the appropriate use of rights related to data distributed within and between cities, including intellectual property rights and data privacy derived from human rights.

Information technology — Data use in smart cities —

Part 2:

Use case analysis and common considerations

1 Scope

This document provides use cases and common considerations for use cases analysis for data use in smart cities.

In particular, this document includes:

- a) methods for collecting use cases;
- b) methods of analysing the collected use cases about data use in smart cities;
- c) common considerations about data use in smart cities based on the analysis of collected use cases.

2 Normative references

There is no normative reference in this document.