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Technical Specification

ISO/IEC DTS 25005-3

Information technology — Data use in smart cities —

Part 3: Measurement, evaluation and reporting

Technologies de l'nformation — Utilisation des données dans les villes intelligentes —

Partie 3: Mesure, évaluation et rapports

ISO/IEC JTC **1**

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Foreword

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

A list of all parts in the ISO 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 atwww.iso.org/members.html.

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Introduction

This document fills in the gaps in standards collaboration to measurement, evaluation and reporting of data use in the ICT development and applications in smart cities, and it is complementary to ISO/IEC 30146 [1] that provides guiding principles for the development of ICT indicators for smart cities. This document provides alternative indicators on data use in smart cities.

This document can also be applied for planning, building, operating, assessing and continuous improvement of data use in smart cities applications, investment, procurement, monitoring, auditing and performance assessment in smart city.

Data use in smart cities standard series consists of three parts. This document is the part 3 of data use in smart cities standard series, which is in alignment with ISO/IEC 25005-1 [2], regarding data as strategic resources and asset of city from many views and various dimensions, bringing multiple stakeholders interests and considerations about demands for data use together as a complementary whole to deal with problems in data use including data are not available, data are not useful, data are not easy to use, data are not used securely, data are not used for enabling intelligent predictions and actions due to lack of comprehensive guarantees about data use in data management and governance. Special attentions are paid to demands for standardization collaboration to enable comprehensive data use to guarantee the data-based, data-driven and data-enabled city-wide ICT development and applications in smart cities to enable data that are available, data that are useful, data that are easy to use, data that are used securely, and data that are used for enabling intelligent predictions and actions. Figure 1 provides the relations among ISO/IEC 25005-1 [2] , ISO/IEC TR 25005-2 [3] and ISO/IEC DTS 25005-3 [4], describing guiding principles for data use in smart cities, core issues and considerations of data use in smart cities which are the basis for data use in smart cities standard series.

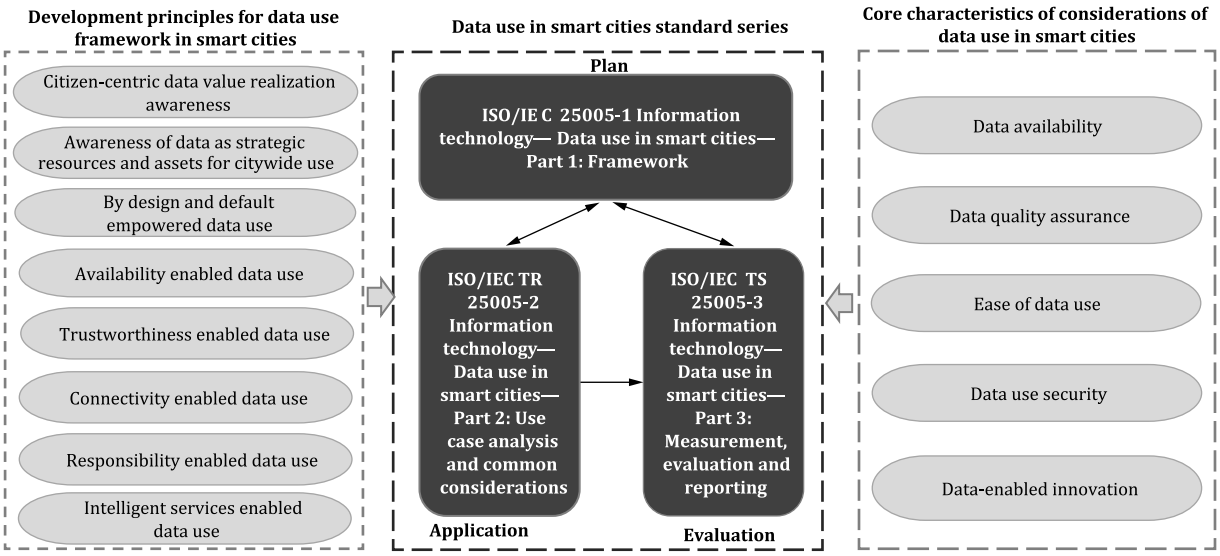


Figure 1 — Data use in smart cities standard series

This document brings existing considerations about indicators, indicator description, measurement, evaluation and reporting of data use together for continuous improvement of total capabilities of data use in smart cities to support data-based, data-driven, and data-enabled ICT development and applications in smart cities.

The evaluation methods depend on different interests of stakeholders for different purposes, a variety of evaluation methods like maturity models are listed in Annex A, Annex B, and Annex C for references.

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Information technology — Data use in smart cities —

Part 3:
Measurement, evaluation and reporting

1 Scope

This document provides indicators, measurement, evaluation, and reporting about data use in smart cities. The document is intended for those who are responsible for planning, building, and operating, assessing and continuous improvement of data use in smart cities applications, as well as for related investment, procurement, monitoring, auditing and performance assessment.

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/IEC DIS 25005-1, *Information technology — Data use in smart cities — Part 1: Framework*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in the ISO/IEC 25005-1 and the following apply.

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

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
data availability
property of being accessible and usable upon demand by an authorized entity

[SOURCE: ISO 37166:2022 [5], 3.2]

3.2
data quality
degree to which a set of inherent characteristics of data fulfil requirements

[SOURCE: ISO/IEC 25024:2015 [6], 4.11]

3.3
data security
preservation of data to guarantee availability, confidentiality and data integrity

[SOURCE: ISO/IEC 29182-2:2013 [7], 2.6.6]

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4 Abbreviations

API Application programming interface

ICT Information and communication technology

IDC International data corporation

IoT Internet of things

OM Operation and maintenance

5 General

The general principles of considerations about indicators, measurement, evaluation and reporting of data use in smart cities are provided in and associated with ISO/IEC 25005-1 [2]:

a) Comparable

   1) The indicators should reflect the common characteristics of the data use in smart cities.

   2) The indicators should be defined in a way that data use can be comparable over time, space and event.

b) Comprehensive

   1) The indicators cover all the core considerations of the data use in smart cities identified in iso:proj:88765ISO/IEC FDIS 25005-1.

c) Adaptable

   1) The indicators should be continuously updated adaptable to scenarios of data use in smart cities.

d) Inclusiveness

   1) The indicators are comprehensive to reflect the multiple stakeholders' considerations about data use.

e) Operational

   1) The indicators should be easily observable, measurable and auditable.

   2) The historic and current data should be either available or easy to collect to connect past to present and present to future.

6 Indicators and measurement methods considerations for data use in cities

6.1 Considerations about indicators

This document identifies five dimensional indicators and thirty one sub-dimensional indicators. The selection considerations are as follows:

a) Applicable to multiple scenarios of measurement of data use citywide. The selected indicators should take into account the use of multiple scenarios in smart cities. For example, it can be used for investment, procurement, monitoring, auditing, and performance assessment of ICT projects, it can also be used for the conceptual design of smart city infrastructure, and it can also be used for measuring and auditing data-driven smart city services.

b) Cover the entire process of data processing, management and governance as well as its conditions and regulatory environments e.g. time, places, events and scenarios.

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