FINAL DRAFT
Technical Report

ISO/IEC DTR 25811

Information technology — Case study of ISO/IEC 24039 for smart city digital platforms

ISO/IEC JTC **1**

Secretariat: **ANSI**

Voting begins on:
2026-09-15

Voting terminates on:
2026-11-10

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Reference number
ISO/IEC DTR 25811:2026(en)

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Published in Switzerland

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Foreword

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

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Introduction

A smart city digital platform (SCDP) between smart city infrastructure and applications are the pivotal component which supports the external access of data and services. ISO/IEC 24039 [1]specifies the reference architecture of SCDPs.

The motivation of this document is to see how the reference architecture in ISO/IEC 24039 [1] fits well with smart cities digital platforms out there. Smart city digital platform deployment cases were collected and analysed. The case study results show the practicality of ISO/IEC 24039 as the SCDP reference architecture. Therefore, this document can be used to disseminate ISO/IEC 24039 to smart city stakeholders for their consideration on smart city digital platform planning, designing and implementation.

In the standardization aspect, with the case study referencing the existing SCDP reference architecture, suggestions on future improvements of ISO/IEC 24039 are derived.

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Information technology — Case study of ISO/IEC 24039 for smart city digital platforms

1 Scope

This document provides case studies on smart city digital platform deployments to see how data and service functionalities in ISO/IEC 24039 are implemented. It includes the summary of ISO/IEC 24039, collected cases of smart city digital platforms, and the analysis based on each capability specified in ISO/IEC 24039.

2 Normative references

There are no normative references in this document.

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/

3.1
smart city digital platform, noun
SCDP, noun
combination of software and hardware that makes up the operating environment to support smart city common services and applications

Note 1 to entry: The operating environment enables data from a variety of sources to be processed and common services to be provided.

Note 2 to entry: Common services are aimed at improving the interoperability of cross-domain systems, for example data exchange, catalogue service, subscription and distribution, etc.

[SOURCE: ISO/IEC 24039:2022 [2], 3.7]

4 Abbreviated terms

AI	artificial intelligence
API	application programming interface
AppKey	application key
AppSecret	application secret
B/S	browser/server
BI	business intelligence
CCTV	closed-circuit television
CDM	common dimensional model
CKAN	comprehensive knowledge archive network
CIM	city information modelling

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ETL	extract-transform-load
ETL-CDM	extract, transform, load - common data model
ETSI	European Telecommunications Standards Institute
ETSI NG-SI-LD	European Telecommunications Standards Institute / next generation service interfaces - linked data
FIWARE	future internet ware
GIS	geographic information system
HDFS	Hadoop Distributed File System
HTTP	hypertext transfer protocol
ICT	information and communications technology
ID	identification
IoT	internet of things
IT	information technology
J2EE	java 2 platform, enterprise edition
JSON	javascript object notation
LWM2M	lightweight machine-to-machine
ML	machine learning
MSA	microservice architecture
NGSI	next generation service interface
NGSI-LD	next generation service interfaces - linked data
NGSIv2	next generation service interfaces version 2
NLP	natural language processing
OAuth	open authorization
OCR	optical character recognition
oneM2M	one machine-to-machine
PostGIS	postgresql geographic information systems
PS-LTE	public safety long-term evolution
RDBMS	relational database management system
RESTful	representational state transfer
RTSP	real-time streaming protocol
SaaS	software as a service
SCDP	SCDP smart city digital platform
SDK	SDK software development kit
SLA	service level agreement
three-D	three-dimensional
UAV	uncrewed aerial vehicle
URL	uniform resource locator
VLCi	València City

5 Overview

5.1 Summary of ISO/IEC 24039

ISO/IEC 24039, published in 2022, specifies the reference architecture of SCDPs, with a focus on supporting access to data and services for applications in smart cities, including the requirements of technical supporting, resource management, capability exposure, and interface, which is displayed in Figure 1.

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