



ISO/IEC 30187

Edition 1.0 2026-05

# INTERNATIONAL STANDARD

---

**Internet of Things (IoT) - Evaluation indicators for IoT systems**



## **THIS PUBLICATION IS COPYRIGHT PROTECTED**

**Copyright © 2026 ISO/IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Secretariat  
3, rue de Varembeé  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

### **About the IEC**

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### **About IEC publications**

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

#### **IEC publications search -**

[webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

#### **IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)**

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

#### **IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)**

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

#### **IEC Products & Services Portal - [products.iec.ch](http://products.iec.ch)**

Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

#### **Electropedia - [www.electropedia.org](http://www.electropedia.org)**

The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

**Warning! Make sure that you obtained this publication from an authorized distributor.**

## CONTENTS

FOREWORD .....	3
INTRODUCTION .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	5
4 Framework of indicator scheme .....	6
4.1 Indicator scheme classification .....	6
4.2 System architecture indicators .....	6
4.3 System functional indicators .....	6
4.4 System quality indicators .....	7
5 System architecture indicators and measurable guidelines .....	9
5.1 System management .....	9
5.2 Compatibility and interoperability .....	10
6 System functional indicators and measurable guidelines .....	11
6.1 General function .....	11
6.2 Sensing control .....	12
6.3 Service support .....	13
6.4 Resource exchange .....	14
6.5 Operation and maintenance control .....	15
6.6 User system .....	16
7 System quality indicators and measurable guidelines .....	16
7.1 Trustworthiness .....	16
7.2 Information security .....	17
7.3 Privacy protection .....	18
7.4 Reliability .....	18
7.5 Resilience .....	19
7.6 Physical security .....	19
Annex A (informative) Example of use case and associated IoT evaluation indicators .....	20
A.1 Overview .....	20
A.2 Evaluation methods and processes .....	20
A.2.1 Evaluation methods .....	20
A.2.2 Evaluation processes .....	20
A.3 Evaluation results .....	20
Annex B (informative) Example of evaluation indicators profile .....	24
Bibliography .....	25
Figure 1 – System architecture indicators .....	6
Figure 2 – System functional indicators .....	7
Figure 3 – System quality indicators .....	8
Table 1 – System management indicators and measurable guidelines .....	9
Table 2 – Compatibility and interoperability indicators and measurable guidelines .....	10
Table 3 – General function indicators and measurable guidelines .....	11
Table 4 – Sensing control indicators and measurable guidelines .....	12

Table 5 – Service support indicators and measurable guidelines.....	13
Table 6 – Resource exchange indicators and measurable guidelines .....	14
Table 7 – Operation and maintenance control indicators and measurable guidelines .....	15
Table 8 – User system indicators and measurable guidelines .....	16
Table 9 – Trustworthiness indicators and measurable guidelines .....	16
Table 10 – Information security indicators and measurable guidelines .....	17
Table 11 – Privacy protection indicators and measurable guidelines .....	18
Table 12 – Reliability indicators and measurable guidelines.....	18
Table 13 – Resilience indicators and measurable guidelines.....	19
Table 14 – Physical security indicators and measurable guidelines.....	19
Table A.1 – Evaluation records of vehicle recognition parking IoT system .....	21
Table B.1 – Evaluation standards in other industries.....	24

## Internet of Things (IoT) - Evaluation indicators for IoT systems

### FOREWORD

- 1) ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.
- 2) The formal decisions or agreements of IEC and ISO on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC and ISO National bodies.
- 3) IEC and ISO documents have the form of recommendations for international use and are accepted by IEC and ISO National bodies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC and ISO documents is accurate, IEC and ISO cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC and ISO National bodies undertake to apply IEC and ISO documents transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC and ISO document and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC and ISO do not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC and ISO marks of conformity. IEC and ISO are not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this document.
- 7) No liability shall attach to IEC and ISO or their directors, employees, servants or agents including individual experts and members of its technical committees and IEC and ISO National bodies for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this ISO/IEC document or any other IEC and ISO documents.
- 8) Attention is drawn to the Normative references cited in this document. Use of the referenced publications is indispensable for the correct application of this document.
- 9) IEC and ISO draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC and ISO take 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, IEC and 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 <https://patents.iec.ch> and [www.iso.org/patents](http://www.iso.org/patents). IEC and ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 30187 has been prepared by subcommittee 41: Internet of Things and Digital Twin, of ISO/IEC Joint Technical Committee 1: Information technology. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
JTC1-SC41/584/FDIS	JTC1-SC41/602/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1, and the ISO/IEC Directives, JTC 1 Supplement available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs) and [www.iso.org/directives](http://www.iso.org/directives).

## INTRODUCTION

System evaluation is a method used to review and select newly developed or rebuilt systems through systematic analysis, considering aspects such as technology, economy, society, and ecology. The system evaluation is carried out according to predetermined system objectives. The purpose is to evaluate the most suitable solution for the application or use case.

An IoT system evaluation usually includes the following steps:

- defining the system of interest and the associated environment,
- reviewing existing relevant standards to set appropriate minimum requirements,
- determining the evaluation items and the resulting list of indicators,
- determining the observable items and collecting relevant information,
- determining the methods and criteria for evaluation, and
- conducting the evaluation.

The conclusion of the evaluation indicator scheme is the basis of the system evaluation process, which can provide evaluation criteria for the objective IoT systems.

IoT systems are being widely used in energy, agriculture, manufacturing, finance, environmental protection and other industries. To identify the advantages and disadvantages among IoT systems, it is important to develop a standard to help users to select appropriate indicators when evaluating the performance of targeted systems.

The set of evaluation indicators described in this document can be considered as a profile, which can be used for the evaluation of IoT systems in the planning phase, the real-time monitoring phase, or the phase after deployment. The specification of other profiles depends on the system that is evaluated. For instance, if an IoT system includes artificial intelligence or digital twin capabilities, additional indicators can be added. Likewise, if an IoT system corresponds to a vertical domain (e.g. health, manufacturing, energy), additional indicators can be added.

## **1 Scope**

This document specifies the evaluation indicators for IoT systems.

This document is applicable to the compilation of the evaluation indicators for IoT systems in specific industries.

NOTE The indicators identified in this document are typical indicators but are not a comprehensive list; and conversely, not every indicator listed applies to every IoT system.

## **2 Normative references**

There are no normative references in this document.

## Bibliography

- [1] ISO/IEC 20924:2024, *Internet of Things (IoT) and digital twin - Vocabulary*
- [2] ISO/IEC/IEEE 15939:2017, *Systems and software engineering - Measurement process*
- [3] ISO/IEC/IEEE 15289:2019, *Systems and software engineering - Content of life-cycle information items (documentation)*
- [4] ISO/IEC 21823-3:2021, *Internet of Things (IoT) - Interoperability for IoT system - Part 3: Semantic Interoperability*
- [5] ISO/IEC 21823-4:2022, *Internet of Things (IoT) - Interoperability for IoT systems - Part 4: Syntactic interoperability*
- [6] ISO/IEC 27001:2022, *Information security, cybersecurity and privacy protection - Information security management systems - Requirements*
- [7] ISO/IEC 27701:2019, *Security techniques - Extension to ISO/IEC 27001 and ISO/IEC 27002 for privacy information management - Requirements and guidelines*

---