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Responsible committee: IOT/1 Internet of Things and Digital Twin

Interested committees:

Title: BS ISO/IEC 30187 Internet of Things (IoT) - Evaluation indicators for IoT systems

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



JTC1-SC41/437/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:

ISO/IEC 30187 ED1

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CLOSING DATE FOR COMMENTS:

2024-08-23

SUPERSEDES DOCUMENTS:

JTC1-SC41/403/CD, JTC1-SC41/423A/CC

IEC ISO/IEC JTC 1/SC 41 : INTERNET OF THINGS AND DIGITAL TWIN

SECRETARIAT:

Korea, Republic of

SECRETARY:

Ms Jooran Lee

OF INTEREST TO THE FOLLOWING COMMITTEES:

SyC Smart Cities

HORIZONTAL FUNCTION(S):

ASPECTS CONCERNED:

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TITLE:

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTERNET OF THINGS (IOT) –

EVALUATION INDICATORS FOR IOT SYSTEMS

FOREWORD

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ISO/IEC 30187, which has been prepared by subcommittee 41: Internet of Things and Digital Twin, of ISO/IEC Joint Technical Committee 1: Information technology. The text of this International Standard is based on the following documents:

Draft	Report on voting
JTC1-SC41/XX/FDIS	JTC1-SC41/XX/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 ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

87 The committee has decided that the contents of this document will remain unchanged until the
88 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
89 specific document. At this date, the document will be

- 90 • reconfirmed,
- 91 • withdrawn,
- 92 • replaced by a revised edition, or
- 93 • amended.

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INTRODUCTION

System evaluation is used to review and select the newly developed or rebuilt system with the method of systematic analysis from the aspects of technology, economy, society and ecology. The system evaluation is carried out according to predetermined system objectives. The purpose is to evaluate the optimal suite to the application or use case.

System evaluation can be divided into seven steps:

1. defining the IoT system of interest and the associated environment,
2. determining the evaluation items and the resulting list of indicators,
3. determining the observable items and collect relevant information,
4. determining the methods and criteria for evaluation,
5. feasibility check,
6. technical and economic evaluation, and
7. comprehensive evaluation.

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

IoT systems are being widely used in energy, agriculture, manufacturing, finance, environmental protection and other industries. To identify the pros and cons among the IoT systems, it is necessary 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. The specification of other profiles depends on the system that is evaluated. For instance if the IoT system includes AI or digital twin capabilities, additional indicators could be added. Likewise if the IoT system corresponds to a vertical domain (e.g. health, manufacturing, energy) additional indicators could be added.

INTERNET OF THINGS (IOT) – EVALUATION INDICATORS FOR IOT SYSTEMS

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 4.2 to 4.5 and sections 5 to 7 are typical indicators, but are not a comprehensive list; and conversely, not every indicator listed will necessarily apply to every IoT system.

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 20924 Internet of things (IoT) - Vocabulary

3 Terms and definitions

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>

For the purposes of this document, the following terms, definitions, and abbreviations apply.

3.1 IoT system

system providing functionalities of IoT

Note 1 to entry: an IoT system can be inclusive, but not limited to, IoT devices, **Error! Reference source not found.**IoT gateways, sensors, and actuators.

[SOURCE:ISO/IEC 20924, 3.2.9]

3.2 indicator

measure that provides an estimate or evaluation of specified attributes derived from a model with respect to defined information needs

[SOURCE: ISO/IEC/IEEE 15939]

3.3 indicator scheme

collection including catalogued indicator defined by common features

Note: The indicator scheme is a systematic, closely set of indicators that reflects the entire evaluation object.

3.4 criteria

rules on which a judgment or decision can be based, or by which a product, service, result, or process can be evaluated

[SOURCE: ISO/IEC/IEEE 15289:2019]

3.5 quality characteristic

inherent characteristic of a product, service, process, or system related to a requirement

[SOURCE: ISO/IEC/IEEE 15288:2023]

4 Framework of indicator scheme

4.1 Indicator scheme classification

Indicators are grouped according to the following categories:

- System architecture indicators,
- System functional indicators,
- System quality indicators.

Each category is further structured onto subcategories (e.g., system management is a subcategory of system architecture).

The following referencing scheme is used:

- Categories are identified as follows: A<x>
- Subcategories are identified as follows: A<x>-B<y>
- Indicators are identified as follows: A<x>-B<y>-C<z>

<x>, <y>, and <z> indicate serial numbers to identify themselves.

4.2 System architecture indicators

The system architecture indicators category includes 3 subcategories (system management, compatibility and interoperability and functional components). They include 11 indicators.

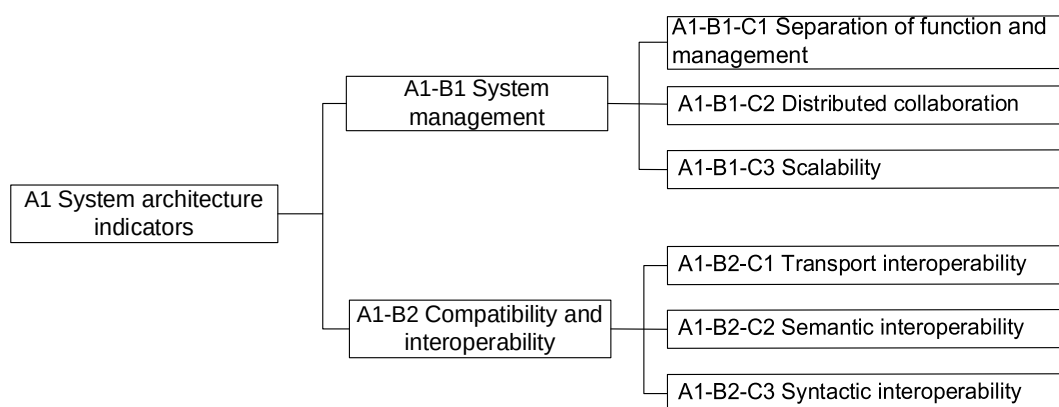


Figure 1 - System architecture indicators

4.3 System functional indicators

The system functional indicators category includes 6 subcategories (general function, sensing control, service support, resource exchange, operation and maintenance control and user system). They include 37 indicators.