



ISO/IEC 30186

Edition 1.0 2025-07

# INTERNATIONAL STANDARD

---

**Digital twin - Maturity model and guidance for a maturity assessment**

Itch Standards  
(<https://standards.itech.ai>)  
Document Preview

ISO/IEC 30186:2025

<https://standards.itech.ai/catalog/standards/iec/0b43663d-3cc2-4e71-a643-60eb0c768c01/iso-iec-30186-2025>



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2025 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 Varembe  
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 It also gives information on projects, replaced and withdrawn publications.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.

<https://standards.iteh.ai/>  
Document Preview

ISO/IEC 30186:2025

<https://standards.iteh.ai/catalog/standards/iec/0b43663d-3cc2-4e71-a643-60eb0c768c01/iso-iec-30186-2025>

**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 Abbreviated terms .....	6
5 Maturity model .....	6
5.1 General .....	6
5.2 Convergence aspect .....	7
5.3 Capability aspect .....	8
5.4 Integrated view aspect .....	9
5.5 Time aspect .....	10
5.6 Trustworthiness aspect .....	11
6 Maturity assessment indicators .....	12
6.1 General .....	12
6.2 Convergence aspect .....	13
6.3 Capability aspect .....	14
6.4 Integrated view aspect .....	15
6.5 Time aspect .....	16
6.6 Trustworthiness aspect .....	17
7 Requirements for a maturity assessment .....	17
Annex A (informative) Example of a maturity assessment for a power digital twin .....	18
A.1 Brief description of the Korea South-East Power Co. (KOEN) digital twin for a power plant .....	18
A.1.1 General .....	18
A.1.2 Functions of the KOEN digital twin .....	19
A.2 Result of a maturity assessment .....	21
A.2.1 General .....	21
A.2.2 Strengths (Level 4 aspects) .....	29
A.2.3 Areas for improvement (Level 3 aspect) .....	30
A.2.4 Recommendations .....	30
A.2.5 Conclusion .....	30
Bibliography .....	31
Figure 1 – Digital twin maturity model .....	7
Figure A.1 – KOEN digital twin for a power plant .....	18
Figure A.2 – KOEN digital twin configuration diagram .....	19
Figure A.3 – KOEN digital twin configuration diagram .....	29
Table 1 – Maturity from convergence aspect .....	8
Table 2 – Maturity from capability aspect .....	9
Table 3 – Maturity from integrated view aspect .....	10
Table 4 – Maturity from time aspect .....	11
Table 5 – Maturity from trustworthiness aspect .....	12
Table 6 – Structure of an indicator for maturity assessment .....	12

Table 7 – Convergence aspect assessment indicators .....	13
Table 8 – Capability aspect assessment indicators .....	14
Table 9 – Integrated view aspect assessment indicators .....	15
Table 10 – Time aspect assessment indicators .....	16
Table 11 – Trustworthiness aspect assessment indicators .....	17
Table A.1 – Functions of the KOEN digital twin .....	19
Table A.2 – Result of a convergence aspect maturity assessment .....	21
Table A.3 – Result of a capability aspect maturity assessment .....	22
Table A.4 – Result of an integrated view aspect maturity assessment.....	24
Table A.5 – Result of a time aspect maturity assessment.....	26
Table A.6 – Result of a trustworthiness aspect maturity assessment.....	27

**iTeh Standards**  
**(<https://standards.itih.ai>)**  
**Document Preview**

[ISO/IEC 30186:2025](https://standards.itih.ai/catalog/standards/iec/0b43663d-3cc2-4e71-a643-60eb0c768c01/iso-iec-30186-2025)

<https://standards.itih.ai/catalog/standards/iec/0b43663d-3cc2-4e71-a643-60eb0c768c01/iso-iec-30186-2025>

## Digital twin - Maturity model and guidance for a maturity assessment

### 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 30186 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-SC41/502/FDIS	JTC1-SC41/525/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).