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Advanced automation technologies and their applications — Requirements for establishing manufacturing enterprise process interoperability —

Part 2: Maturity model for assessing enterprise interoperability

Technologies d'automatisation avancées et leurs applications — Exigences relatives à l'établissement d'un processus d'interopérabilité pour les entreprises de fabrication —

Partie 2: Modèle de maturité pour l'évaluation de l'interopérabilité d'entreprise

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Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Abbreviated terms **3**
5 Conformity with this part of ISO 11354 ..... **3**
6 Basic concepts of enterprise interoperability **3**
6.1 Enterprise interoperability 3
6.2 Framework for enterprise interoperability 3
7 The maturity model for enterprise interoperability (MMEI) **4**
7.1 Scope of model 4
7.2 Overview of the levels of interoperability maturity 4
8 Specification of the five maturity levels **6**
8.1 Maturity level 0 — Unprepared 6
8.2 Maturity level 1 — Defined 7
8.3 Maturity level 2 — Aligned 7
8.4 Maturity level 3 — Organized 8
8.5 Maturity level 4 — Adaptive 9
9 Concern-based assessment of maturity levels **9**
9.1 Approach 9
9.2 Maturity assessment guidelines 10
9.3 Illustrative data 12
9.4 Graphical representation of maturity level by concern and barrier 13
Bibliography **16**

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

ISO 11354-2 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 310, *Advanced automation technologies and their applications* (as CEN/TS 16658:2014) and was adopted, under a special "fast-track procedure", by ISO/TC 184 *Automation systems and integration*, Subcommittee SC 5, *Interoperability, integration, and architectures for enterprise systems and automation applications*, in parallel with its approval by the ISO member bodies.

ISO 11354 consists of the following parts, under the general title *Advanced automation technologies and their applications — Requirements for establishing manufacturing enterprise process interoperability*:

— *Part 1: Framework for enterprise interoperability*

— *Part 2: Maturity model for assessing enterprise interoperability*

The following parts are planned:

— *Part 3: Requirements for information and communication technology-enabled enterprise interoperability*

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Introduction

This part of ISO 11354 is based on ISO 11354-1, which describes the background and motivation for ISO 11354, and provides a framework for enterprise interoperability (FEI) for describing and representing concerns, barriers and approaches to enabling enterprise interoperability. It identifies four levels of concern (business, process, services, data) and three kinds of barriers (conceptual, technological, organizational) that are significant for enterprise interoperability, and specifies three approaches (integrated, unified, federated) to address these concerns and overcome these barriers.

This part of ISO 11354 is also based on work carried out in European projects such as ATHENA[9],[10] and INTEROP NoE[14].

The barriers and concerns identified in ISO 11354-1 are used to characterize five levels of interoperability maturity. For each combination of barriers and concerns, for all levels of interoperability maturity, mechanisms are specified to enable an enterprise to assess its interoperability capabilities, and to evaluate these against characterizations of maturity level. Two methods are then specified for overall assessment:

a) by concern and barrier, or

b) by maturity level.

An illustrative method is provided to show how concern and barrier assessments can be combined into a graphical representation, so providing an overall indication of existing enterprise capability to interoperate with others ("as is"). Additionally this analysis and representation can identify where capabilities that are needed to achieve desired higher levels of interoperability are insufficient and consequently investment or reengineering is required ("to be").

ISO 11354 focuses on, but is not restricted to, enterprise (manufacturing or service) interoperability. It is intended for use by people who are concerned to assess capabilities for enterprise interoperability and identify areas where those might need to be improved to meet the needs and ambitions of the enterprise.

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Advanced automation technologies and their applications — Requirements for establishing manufacturing enterprise process interoperability —

Part 2: Maturity model for assessing enterprise interoperability

1 Scope

This part of ISO 11354 specifies:

— levels to represent the capability of an enterprise to interoperate with other enterprises;

— measures for assessing the capability of a specific enterprise to interoperate with other enterprises;

— methods for combining these measures into two kinds of overall assessment:

  — maturity level by concern and barrier, and

  — assessment relative to four designated maturity levels;

— a method for representing concern and barrier overall assessments in a graphical form and for identifying where capabilities are required to achieve desired higher levels of interoperability.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11354-1:2011, *Advanced automation technologies and their applications — Requirements for establishing manufacturing enterprise process interoperability — Part 1: Framework for enterprise interoperability*

3 Terms and definitions

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

3.1
enterprise
one or more organizations sharing a definite mission, goals, and objectives to offer an output such as a product or service

Note 1 to entry: This term includes related concepts such as extended enterprise or virtual enterprise.

[SOURCE: ISO 15704:2000, 3.6]

3.2
enterprise interoperability
ability of enterprises and entities within those enterprises to communicate and interact effectively

Note 1 to entry: Interoperability is considered as significant if the interactions can take place in at least one of the four areas of interoperability concerns: data, service, process and business.

[SOURCE: ISO 11354-1:2011, 2.1]

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