TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 16658

June 2014

ICS 03.100.01; 35.240.50

English Version

Requirements for establishing manufacturing enterprise process interoperability - Maturity model for assessing enterprise interoperability

Exigences pour établir l'interopérabilité des processus d'entreprise manufacturière - Modèle de maturité pour évaluer l'interopérabilité d'entreprise

Anforderungen für das Erreichen einer Prozess-Interoperabilität in Fertigungsunternehmen - Reifegradmodell für die Beurteilung der Unternehmensinteroperabilität

This Technical Specification (CEN/TS) was approved by CEN on 20 January 2014 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword

This document (CEN/TS 16658:2014) has been prepared by Technical Committee CEN/TC 310 “Advanced automation technologies and their applications”, the secretariat of which is held by BSI.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

During its preparation, contributions have also been received from ISO/TC 184/SC5, “Industrial automation systems and integration/Architecture, communications and integration frameworks”.

CEN/TS 16658 was prepared with the aim to provide an implementation of EN ISO 11354-1: Framework for Enterprise Interoperability.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document is based on EN ISO 11354-1. Part 1 of the standard (EN ISO 11354-1:2011) describes the background and motivation for the standard, 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, organisational) that are significant for enterprise interoperability, and specifies three approaches (integrated, unified, federated) to address these concerns and overcome these barriers.

This Technical Specification is also based on work carried out in the European projects ATHENA [9] [10], INTEROP NoE [15] and others.

The barriers and concerns identified in EN ISO 11354-1 are used to characterise 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 characterisations of maturity level. Two methods are then specified for overall assessment (i) by concern and barrier or (ii) 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).

The International Standard EN 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.

1 Scope

This Technical Specification 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 (i) maturity level by concern and barrier and (ii) 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.

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

3 Terms and definitions

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

NOTE Definitions copied verbatim from existing standards are followed by a reference to the source standard.

3.1
enterprise
one or more organisations 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]

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

Note 1 to entry: Interoperability is considered as significant if the interoperations can take place at least on the three different levels: data, services and process, with a semantics defined in a given business context.

[SOURCE: EN ISO 11354-1:2011]

3.3
enterprise interoperation
interactions between enterprise entities