SLOVENSKI STANDARD
SIST EN 62656-5:2018

01-februar-2018

Register ontologije standardiziranih izdelkov in prenos prek razpredelnic - 5. del: Vmesnik za opis aktivnosti (IEC 62656-5:2017)

Standardized product ontology register and transfer by spreadsheets - Part 5: Interface for activity description (IEC 62656-5:2017)

Standardisierte Übertragung und Registrierung von Ontologien für Produkte mittels Tabellen - Teil 5: Schnittstelle für die Beschreibung von Aktivitäten (IEC 62656-5:2017)

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Enregistrement d'ontologie de produits normalisés et transfert par tableurs - Partie 5: Interface pour la description des activités (IEC 62656-5:2017)

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Ta slovenski standard je istoveten z: **EN 62656-5:2017**

ICS:

01.110	Tehnična dokumentacija za izdelke	Technical product documentation

SIST EN 62656-5:2018 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

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English Version

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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

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European foreword

The text of document 3D/257/CDV, future edition 1 of IEC 62656-5, prepared by SC 3D "Product properties and classes and their identification", of IEC/TC 3 "Information structures and elements, identification and marking principles, documentation and graphical symbols" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62656-5:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-04-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-07-24

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The text of the International Standard IEC 62656-5:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated :

IEC 62656-3:2015	NOTE	Harmonized as EN 62656-3:2015 (not modified).

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 61360-2	2012	Standard data element types with associated classification scheme for electric components - Part 2: EXPRESS dictionary schema	EN 61360-2	2013
IEC 61360-4	-	Standard data element types with associated classification scheme for electric components - Part 4: IEC reference collection of standard data element types and component classes	-	-
IEC 62656-1	-	Standardized product ontology register and transfer by spreadsheets - Part 1: Logical structure for data parcels	EN 62656-1	-
IEC 62264-3	2007	Enterprise-control system integration - Part 3: Activity models of manufacturing operations management	EN 62264-3	2007
ISO 13584-24	-	Industrial automation systems and integration - Parts library - Part 24: Logical resource: Logical model of supplier library	-	-
ISO 13584-42	2010	Industrial automation systems and integration - Parts library - Part 42: Description methodology: Methodology for structuring parts families	-	-

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Standardized product ontology register and transfer by spreadsheets – Part 5: Interface for activity description

Enregistrement d'ontologie de produits normalisés et transfert par tableurs – Partie 5: Interface pour la description des activités

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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STANDARDIZED PRODUCT ONTOLOGY REGISTER AND TRANSFER BY SPREADSHEETS –

Part 5: Interface for activity description

FOREWORD

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International Standard IEC 62656-5 has been prepared by subcommittee 3D: Product properties and classes and their identification, of IEC technical committee 3: Information structures and elements, identification and marking principles, documentation and graphical symbols.

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

CDV	Report on voting
3D/257/CDV	3D/287/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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A list of all parts in the IEC 62656 series, published under the general title *Standardized product ontology register and transfer by spreadsheets*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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STANDARDIZED PRODUCT ONTOLOGY REGISTER AND TRANSFER BY SPREADSHEETS –

Part 5: Interface for activity description

1 Scope

This part of IEC 62656 specifies a method for representing activities and relations among the activities by a tabular ontology representation, called “parcellized activity model” or PAM for short, which is a specialized use of a generic tabular ontology data model, known as the parcellized ontology model (POM) defined in Part 1 of the IEC 62656 series. The activities that can be described by this document include part or whole of an enterprise, an organization or a collection of services, a set of events or processes which interact with each other by exchanging physical or non-physical entities. This part of IEC 62656 also defines a method for uniquely identifying activities, or their homologues happenings in a certain sequence. In addition, this document identifies flows of information, objects or materials exchanged among activities, where each of the activities is represented by a class and each flow by a relation.

Consequently, this document enables characterization, classification, and identification of a set of activities as part of a normalized ontology. And this enables registering of a pattern of activities as a set of metadata and uploading it onto the IEC 61360 Common Data Dictionary (CDD), maintained as an online database of the electrotechnical concepts.

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Additionally, this part of IEC 62656 provides a method to integrate ontologies of products and activities including services, in a single model. This means a product can be analyzed in its operational context for service. Such an integrated view will help people of different technical backgrounds to see and share knowledge about the extent of an enterprise that requires the products and services as indispensable resources. Such a data representation will also help analyse the key functionalities of an enterprise and its available resources, with clear definitions, limitations and interactions among them, when people are required to respond or react to a new external condition or situation in a short time frame, in particular, at an emergency or natural hazard.

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Meanwhile, this part of IEC62656 does not intend to provide a detailed algorithmic description of a flow of information, timing chart of processes, or sequential ordering of events that will be necessary in a software design or programming phase of an information system that handles activities or events. These detailed specifications of the algorithms and associated construction of the data structures are left to the realm of software engineering methodology and tools where there are so many schools and styles already, such as UML (Unified Modelling Language), BPMN, SysML, DFD, IDEF, and other CASE (Computer Aided Software Engineering) tools.

This International Standard neither intends to standardize nor introduce a new method of graphic description for activities or processes. Ideally, an ontology of activities modelled by this International Standard must be expressible by a number of existing graphical presentation tools and process description languages for activities.

Nevertheless, some graphical presentations in the style of such tools or languages are helpful for making the people understand the content of the PAM, and therefore, they are used in this International Standard. In most of the cases, IDEF-0 is preferred for the purpose, because it describes both activities and flows of things among the activities, but any other choices of tools or languages can be made, wherever they are appropriate and relevant.

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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.

IEC 61360-2:2012, *Standard data element types with associated classification scheme for electric components - Part 2: EXPRESS dictionary* schema

IEC 61360-4, *Standard data element types with associated classification scheme for electric components – Part 4: IEC reference collection of standard data element types and component classes (*available at http://cdd.iec.ch/)

IEC 62656-1, *Standardized product ontology register and transfer by spreadsheets – Part 1: Logical structure for data parcels*

IEC 62264-3:2007, *Enterprise control system integration – Part 3: Activity models of manufacturing operations management*

ISO 13584-24, *Industrial automation systems and integration – Parts library – Part 24: Logical resource: Logical model of supplier library*

ISO 13584-42:2010, *Industrial automation systems and integration – Parts library – Part 42: Description methodology: Methodology for structuring part families*

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3 Terms, definitions and abbreviations

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3.1 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 13584-24 and IEC 62656-1, as well as the following apply.

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

3.1.1
activity
organizational, logical or conceptual unit for performing a set of specific actions or functionalities

Note 1 to entry: An activity can be just for performing one action or functionality, and in an extreme case, for zero action or functionality, meaning the activity is just an endpoint for terminating activities.

Note 2 to entry: An activity is not necessarily a process in time sequence in the PAM. Two or more activities may concurrently work and interact with each other.

3.1.2
arrow
mapping from one category of things to another, yielding an information flow, a movement of physical items, a change of states from one state to another, or a directional correspondence from one collection of things to another, which is embodied as a functional relation

Note 1 to entry: Arrow as an information construct in this part of IEC 62656 embodies an mathematical entity named “arrow” originating in the category theory of mathematics, which is synonymous with function, but maps elements of one collection specified as “domain” to another collection specified as ”codomain”, with a strong sense of direction.

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Note 2 to entry: Arrows can also be used in a formula, such as in $F : X_1 \times X_2 \times \cdots \times X_n \rightarrow X_{n+1}$ where an arrow exists as the mapping F from an n-ary set $X_1 \times X_2 \times \cdots \times X_n$ to X_{n+1}.

3.1.3
arrow overloading
specialization of an arrow by narrowing or detailing either one of or both of the domain and codomain of the arrow, being considered as a function

Note 1 to entry: Overloading of an arrow typically takes place on the frame boundary of a diagram in a lower node of an activity.

3.1.4
aspect
way things appear, are looked at or expressed as an association among properties, classes, or ontological elements in general, by the use of a relation

Note 1 to entry: A property may belong to one or several aspects.

3.1.5
branching point
forking point
point from which an arrow forks out into two or more arrows

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3.1.6
connection point
point at which arrows or lines fork out, or at which several arrows or lines meet each other

Note 1 to entry: Both branching point and junction points are included in the connection points.

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3.1.7
IDEF0
Integration Definition for Function Modelling
graphical language to model decisions, actions, and activities of an organization or system, defined in the IDEF series of data modelling methods

Note 1 to entry: IDEF0 was once adopted as Federal Information Processing Standard (FIPS) 183 by ANSI (American National Standards Institute). However, it was withdrawn from FIPS in 2012, for it is no longer necessary to designate only one method among many as the graphical language for modelling activities.

Note 2 to entry: This note applies to the French language only.

3.1.8
ontology
shared and formal modelling of knowledge about a domain

3.1.9
parcellized ontology model
POM
formal specification of being of things as a concept, including state of things and configuration of things, by their properties and relations, formed in a set of relational tables each of which represents a category of the ontological entities

Note 1 to entry: Parcellized ontology model is formally specified in IEC 62656-1.

Note 2 to entry: Examples of the categories of the ontological entities are class, property, relation, datatype, unit of measurement, etc., which are essential constructs for the description of being.

Note 3 to entry: This note applies to the French language only.

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3.1.10
parcellized activity model
PAM
specialized use of the parcellized ontology model defined in IEC 62656-1 for representing an activity as part of an ontology

Note 1 to entry: This note applies to the French language only.

3.1.11
service
activity performed or being performed for the purpose of someone or something

Note 1 to entry: Usually an activity is performed else than for oneself or for itself.

3.1.12
subactivity
subcomponent of an activity

Note 1 to entry: One activity can be broken down into several subactivities. They can be a set of diachronical divisions of an activity, as well as a set of synchronical divisions of an activity. For example, a collaborative work done by different task forces of an enterprise.

3.1.13
transcendent arrow
arrow that enters into an activity and interacts with some or all of its subactivities

Note 1 to entry: A transcendent arrow may be forking into multiple arrows or joining another in a lower node frame.

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3.2 Abbreviations

For the purposes of this document, the following abbreviations apply.

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BPML	Business Process Modelling Language
BPEL	Business Process Execution Language
BPMN	Business Process Modelling Notation
CDD	Common Data Dictionary
DFD	Data Flow Diagram
KPI	Key Performance Indicator
POM	Parcellized Ontology Model
SysML	Systems Modelling Language
UML	Unified Modelling Language

4 Overview

4.1 Activity described as an ontology

According to an acknowledged web resource, ontology is an explicit and formal specification of conceptualization in a domain. If ontology is such, then an activity should be definitely a part of the ontology. For an activity usually has an objective, ways and means to achieve the objective, person or organization to be engaged, time, financial constraints and requirements to be observed. In addition, an activity has a relationship to other activities, having them as prior or posterior activities with which it may exchange information, goods or material. Such an activity may have child or subactivities that assume part of the role or objectives of the main activity. Moreover, some patterns of activities are repeatedly performed, so they can be considered as a model and its instances. Furthermore, an activity is often a collaborative process conducted in plural languages by different peoples of different countries on different continents, with a plethora of cultural backgrounds and traditions. In consequence, there are ample needs and necessities to share understanding about activities in an internationally