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Intelligent Information Request and Delivery — A process model for the exchange of information for use

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTELLIGENT INFORMATION REQUEST AND DELIVERY – A PROCESS MODEL FOR THE EXCHANGE OF INFORMATION FOR USE

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INTRODUCTION

According to the strategic business plan of IEC TC 3 as of 2019-07-12, standardization in the field of documentation covers rules, principles, and methods focusing on machine-readable representation of information, including ontologies for the definition, co-ordination, and management of the information required during the whole life cycle of a device, system, or plant.

This document approaches information for use that covers the life cycle stages of the use of products in B2C and especially B2B environments, for example for technicians who assemble, mount, operate, maintain, repair, or disassemble technical assets.

In a digitalized world, (printed) documents no longer support the information needs of people who are used to accessing all kinds of information quickly according to their need, either in their private life or in their professional contexts, on the internet, mostly on mobile devices. Especially in the context of smart manufacturing or the industrial internet of things, where any kind of technical objects are mirrored by their digital twins, all information regarding the efficient, effective, and safe use of technical objects or products (compare IEC 82079-1:2019) needs to be connected to these virtual objects in a dynamic way. Users do not want to search for technical information in huge documents. They want information matching their concrete use cases instead, according to their personal requests. Together with real-time descriptive and operational data, they need information at any time that helps them to interpret these data and to take adequate actions to guarantee smooth operation of the assets.

Where the traditional context of linear documents is lost, the metadata ontology of the Intelligent Information Request and Delivery Standard (iiRDS™[1]), maintained by the iiRDS consortium, helps to couple digital twins with the technical information needed in concrete use cases.

Such semantically supported information processes guarantee real-time delivery of the right information, at the right time, on the right place, to the immanent need of the users. It helps avoid huge costs for the operators of any kinds of assets, caused by wrong, outdated, or not easily accessible and understandable information.

To make sure that all information providers and information consumers can benefit from the practical and economic advantages of iiRDS, this specification defines a standard information flow (Clause 6), a metadata model (Clause 7), and a set of core metadata (Annex A) that shall be applied to facilitate this approach.

Within the ecosystem of IEC TC 3, iiRDS uses some administrative metadata according to IEC 82045. All other relevant standards in the field of information management have been evaluated as well to make sure that no unnecessary overlap occurs.

IEC 61355-1:2008 defines a general document classification framework that covers technical documentation at its lowest level but lacks a more granular categorization. iiRDS defines a metadata framework tailored to technical documentation which enables a more granular information access as a basis for intelligent information processes. iiRDS can, therefore, be considered as a domain-specific supplement to IEC 61355-1:2008.

Whereas IEC 62656-8 defines a product ontology, iiRDS sets requirements for information products (compare IEC/IEEE 82079-1:2019), also using a different technology for specifying its requirements. Thus, iiRDS adds new aspects to the representation of technical information with respect to information for use of products.

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[1] iiRDS is the trade name of a product supplied by the iiRDS consortium. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

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INTELLIGENT INFORMATION REQUEST AND DELIVERY – A PROCESS MODEL FOR THE EXCHANGE OF INFORMATION FOR USE

1 Scope

This specification addresses creators of information for use of products. Examples of information creators are information architects and technical communicators.

The document defines requirements for electronic request and delivery processes for any kind of information for use. Such processes are needed to bridge the gap between objects in the real world and the information needed by their dedicated users, especially in the context of smart manufacturing, industry 4.0 and the industrial internet of things. This document specifies processes in order to enable n:m relations between information sources and information users when there is no explicit agreement between information provider and information consumer. This document also specifies metadata.

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/IEEE 82079-1:2019, *Preparation of information for use (instructions for use) of products – Part 1: Principles and general requirements*

tekom (2020), iiRDS – The International open source standard for Intelligent Information Request and Delivery. Available at https://iirds.org/material-downloads/iirds-version-1-1/

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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
creation application
software system which supports the creator in creating intelligent information

Note 1 to entry: Usually the application consists of an editor for structured authoring and managing metadata as well as a repository in which information units are stored and from which units can be retrieved and used for generating information products. A creation application also includes automatically generated content, for example generated texts generated by artificial intelligence or information products generated out of third party systems.

3.2
creator (intelligent information)
person who analyses, conceptualizes, and compiles information requirements and design

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