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Douglas Mann, Secretariat, ISO/IEC JTC 1/SC 32

Pacific Northwest National Laboratory \*, 901 D Street, SW., Suite 900, Washington, DC, 20024-2115, United States of America

Telephone: +1 703 575 2114; Facsimile: +1 703 681 9180; E-mail: [MannD@battelle.org](mailto:MannD@battelle.org)

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**Data Management and Interchange**

**ISO/IEC JTC 1 / SC 32**

**Data Management and Interchange**

**WG 2**

**Metadata**

**Title:** Changes to terminology

**Status:** Explanatory Note for ISO/IEC JTC 1 / SC 32 / WG 2

**Author:** Joe Christensen (Editor, Part 3) and Graham Horn based on WG2 Ballot comment template

**Abstract:** ISO/IEC 11179 Information Technology – Metadata Registries (MDR) - Part 3: registry Metamodel (MDR3) was issued for CD ballot on 30 June 2000. This is an Explanatory Note issued in order to assist National Bodies in preparing their ballot comments.

## PURPOSE

The text of CD 11179-3 makes frequent use of the term "administered data component" but this term is not used in the accompanying diagrams of the metamodel.

The main purpose of this explanatory note is to explain this difference between the text and diagrams and to eliminate any confusion.

The explanatory note also provides an explanation of the meaning of some other terms in CD 11179-3 describing metadata registries and their content, which can be incorporated in the next progression (revised CD or DIS). Member countries may find these notes helpful in preparation of their own ballot comments, particularly any comments about definitional ambiguities.

## DESIRABLE OUTCOME OF CD

As part of the current revision of part 3, the scope of ISO/IEC 11179 is broadened to encompass any "metadata registry items and systems", for example a data element, data element concept, classification scheme, information or data model entity, or other forms of metadata not yet envisaged. The existing Part 3 of 11179 focuses mainly on "data elements", mentions "data element concepts", but doesn't really address other metadata types.

In revising Part 3 (and indeed the consequent changes to the other parts of the standard), we need to ensure that both the text and the metamodel diagrams clearly convey this broadened scope. The nature of a standard, as a document provided to facilitate uniformity in procedures and products resulting in high quality outcomes, means that its language should use terms, and sentences, that are clear, self explanatory, distinctive and unambiguous.

# ISO/IEC JTC1/SC32/WG2 SD-006

## EXPLANATION

The term "administered component" has been used in the text to replace the term "data element". This was intended as a generic term describing any metadata registry item, such as a data element, a data element concept, a classification scheme, an information model entity, or some other type of metadata registry item. This generic term has been incorporated in the metamodel diagrams.

The term "administered data component" (as distinct from "administered component", above) has been used in the text to replace the term "data element" in its specific sense, meaning an instance of metadata of the type which is an attribute of an entity about which data is stored, specified and/or defined. This specific term, and its derivatives, such as "administered data component concept", have not been incorporated in the metamodel diagrams.

The metamodel diagrams contain the specific terms of "data element", "data element concept", "information model entity" and "classification scheme". In the corresponding text, most occurrences of the words "data element" have been replaced by either the generic term "administered component", or the specific term "administered data component".

This should be particularly taken into account when mapping terms in the diagrams to definitions in clause 4.15. Note that the definitions in clause 4.15 have not yet been put into alphabetical order.

The term "administered component" and "administered data component" were adapted to provide a distinction between the two different meanings previously applied to "data element".

National Bodies are asked to comment on the suitability of the terms "administered component", "data element" and "data element concept", as well as the various derivatives of the former, as used in the model diagrams. Comments are also requested on whether any other terms, for example but not limited to "administered data component", "data concept", "data definition", "data specification", "entity data attribute", and "metadata registry item" are preferable to any of them, and if so, which.

The term "registry" has also been used with two meanings. One meaning is for a product that holds metadata, and the other, for a system also including the decision making and registration mechanisms.

The reason for this change is to apply the registry concept to a "metadata repository", thereby providing a clearer distinction from a "data repository". The term that should have been applied for this purpose was "metadata register".

National Bodies are asked to comment on the suitability of the terms "data repository", "metadata registry" and the intended "metadata register". Comments are also requested on whether any other terms are preferable to instances of either of them, and if so, which instances.

## BACKGROUND

There are four basic concepts, regarding references to data itself and its specifications, whose labelling are often overlapped and confused by people. There are an additional three basic concepts regarding where data and metadata are stored and registered, which are also overlapped and confused by people, and which are also addressed below. In both cases, confusion occurs periodically as a result of the mixed usage.

The current revision of Part 3 of ISO/IEC 11179 provides an opportunity to overcome the problems of overlapping term usage and ensure each concept in both of the sets are explicitly defined and distinctly labelled in the CD as part of this revision. This comment is based on the understanding that the process includes any flow-on changes to other parts of the standard.

The definitions do not all necessarily need to be in Part 3, but should be appropriately addressed throughout the 11179 series, so as to facilitate comparison of the terms in the set.

With regard to references to data itself and its specifications, the four items with names with overlapping usage follow. Each of these is often used loosely when referring to the others, and may cause confusion.

- “data instance”. This is an instance of data, such as occurs in a database.
- “data item”. This is an instance or member of an enumerated allowable data domain – the name “data item” is that applied in the Australian Defence Formatted Message Formatting System (ADFORMS) and NATO (European, US & Canadian) “ADat-P3” Defence defined content message structures. This is called "permissible value" in the model, and is defined as: "An expression of a value meaning in a specific value domain."
- “data element” (specific meaning). This is an instance of metadata of the type, which is an attribute of an entity about which data is stored, specified and/or defined. This is labelled “Administered Data Component” in the draft CD. While this was due to a misinterpretation of the intention of proposed changes, it provides an opportunity to improve on “data element “ for this term also. Several alternative labels have recently been suggested for this, such as "administered data component (ADC)", "data definition (DDef.)", "data specification (DSpec.)", and "entity data attribute (EDA)".
- “data element” (generic meaning). This is an instance of metadata of any type, typically any sort of entry in a data dictionary, etc. This is labelled “Administered Component” in the draft CD, though several other labels have recently been suggested, such as "administered data component (ADC)", and "metadata registry item (MdRI)".

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Three names with overlapping usage have been used in references to where data and metadata are stored and registered. These three meanings were not fully distinguished in the CD, in particular, both “register” and “registry”, as defined below were labelled as registries:

- “data repository”. This is an application or device in which instances of data are stored, such as a database, or possibly a spreadsheet or word processing document, but could even be a sheet of paper or notebook. This is often called a “repository”.
- “metadata register”. This is an application or device in which instances of metadata of various types are stored, such as the database portion of a data dictionary. This is often also called a “metadata repository”, or just a “repository”, and is accordingly sometimes confused with a data repository as a result. People referring to metadata as “the data”, etc add to this confusion, and hence to the grounds for distinct labelling as a register.
- “metadata registry”. This is defined in the CD as “A system for managing structured metadata describing the semantic content of sharable data and metadata.” The management includes recording, registration, storage, and recall of the metadata. A data registry accordingly incorporates a data register. This is also sometimes loosely called a “repository”, due effectively to confusion between the roles of registry and register.

The pivotal issue is that the CD deals with information. Therefore, every effort should be made to maximise comprehension by readers of the standard as revised. This should, of course apply to all standards, but is especially important for this metadata standard. Clearly, we need to make terms, and sentences, clear, self explanatory, distinctive and unambiguous.

One approach is to make any items that are commonly confused have names that are either clearly different or clearly denoting hierarchical relationships. An example of the former is "permissible value" instead of "data item", thereby minimising likelihood of confusion with either “data instance” or "data element". An example of the latter is "administered data component” as a lower level in a hierarchy below "administered component”. However, "administered component” also is highly ambiguous ("administered component” ..... of what?). As a result, the terms “data definition”, “data specification” and “entity data attribute” have been suggested as possible alternatives to this term.

Applying the above rationale, the following illustrates a possible structure; if "administered component” is replaced by “metadata registry item”, and "data element" is replaced by “data definition”, then we get the following structure. A

- “data instance” (possibly contained within a
- “database” or “data repository”,) may have a value equal to one of a
- "permissible value" for a particular
- "data definition” which, along with others such as “data concept” is a particular type of
- “metadata registry item” contained within a
- “metadata register”, which is a component of a
- “metadata registry” system.

Each of these terms is relatively self explanatory and unambiguous, and that they are inherently unlikely to be confused for each other. Subject to CD ballot comments and discussion at the WG 2 October 2000 meeting, they could be candidates for selection as labels for the concepts involved. However, none of these terms are definitely decided, and delegates are welcomed to put forward any alternatives which they feel are at least as clear, self explanatory, distinctive and unambiguous.

End of Paper