FINAL DRAFT

INTERNATIONAL STANDARD

ISO/FDIS 5116-1

ISO/TC **68**/SC **9**

Secretariat: AFNOR

Voting begins on:
2021-05-20

Voting terminates on:
2021-07-15

Improving transparency in financial and business reporting — Harmonization topics —

Part 1: European data point methodology for supervisory reporting

Reference number
ISO/FDIS 5116-1:2021(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by the European Committee for Standardization (CEN) (as CWA XBRL) and was adopted with the following modifications by Technical Committee ISO/TC 68, *Financial services*, Subcommittee SC 9, *Information exchange for financial services*.

— minor editorial change to Clause 1;

— Clause 2, Normative references, and Clause 3, Terms and definitions, added;

— minor editorial changes.

A list of all parts in the ISO 5116 series can be found on the ISO website.

This document uses different verbal forms from those listed in the ISO/IEC Directives, Part 2. The verbal forms for this document are detailed in the Introduction.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

0.1 General

General Data Point Modelling is a data oriented methodical procedure to create semantic and multidimensional models that reflect the reporting requirements of European supervisors. Reporting requirements are defined by regulations and represented in tables. The first Data Point Models (DPM) were developed in 2009 to describe the data in a redundancy-free, consistent and unambiguous way.

Semantic models are used to ease the communication between domain experts and IT specialists. Whereas formal models are defined for technical purposes, semantic models are defined from a viewpoint of a domain user. They can contain definitions, documentations and explanations. Domain experts decide which objects are relevant and which relations exists between the objects of the model. Semantic models are independent of any physical implementation. The characteristic of multidimensional models is the division of data in quantitative and qualitative aspects.

In general, the parameters that are measured in figures (also known as metrics) are quantitative aspects that often build the basis of data analyses. Qualitative aspects provide a closer description for these parameters. Data objects based on multidimensional models are referred to as “facts”. Fact attributes are the quantitative aspects of a fact, and dimensions relate to the qualitative aspects of a fact.

A Data Point Model reflects semantic and multidimensional aspects of data modelling. Data Point Models should enhance the understanding of the data requirements for the reporting entities by providing information on correlations that exceed the information given only by table structures. The main challenge in data modelling is the identification of implicit information given in tables and its transformation into a logical model. Data Point Models are typically created by specialists in supervision who are highly skilled in understanding supervisory reporting frameworks.

This document intends to support the communication between supervisory experts and IT experts by introducing the concept of data point modelling and its underlying terms. Data Point Models remain as semantic models, at first technologically neutral, but they are used by IT specialists: (1) for generating data formats for the reporting process; or (2) for designing multidimensional as well as relational database structures for the analysis of supervisory data.

This guidance is in the form of notes in association with the pertaining requirements clause and uses the terms “MUST” (strong recommendation), “SHOULD” (recommendation) and “MAY” (possibility). Organizations wishing to implement this document would be expected to consider all recommendations where the terms “MUST” and “SHOULD” are used.

0.2 Objective

A Data Point Model consists of objects that reflect the supervisory metadata and their relations among each other that can be communicated and understood by computers. The objects of a data point model described in this document facilitate the ease of understanding of the data structure for technicians, and reflects the definitions, rules and constraints to be met when using a Data Point Model as the basis for the generation of a data format, or as the basis for analytical purposes.

0.3 Target audience

This document is being created to support Information Technology (IT) experts in the transfer of content from regulatory reporting to IT systems. It assumes that the reader has a working knowledge of multidimensional models. Furthermore, basic knowledge about Business Intelligence is assumed for understanding the rules to be followed when designing a multidimensional database structure for data warehouses.

Improving transparency in financial and business reporting — Harmonization topics —

Part 1: European data point methodology for supervisory reporting

1 Scope

This document defines the Data Point Methodology for the creation of Data Point Models in the context of European supervisory reporting. Data Point Models are published by a European supervisory authority. To reflect the defined structures in a machine-readable form, they can be accompanied by an XBRL taxonomy. It is also possible to extend the described methodology to other environments.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Data Point metamodel

4.1 General

The Data Point metamodel provides: (1) the components for the construction of a formal model that describes sets of DataPoints relevant to European supervisory reporting frameworks; (2) definitions, rules and constraints on how to combine these components; and (3) the meaning (semantic) of the components and relations. Similar to a model construction kit for toys, it provides the modelling principles with all the characteristics available for use by the modeller. A UML class diagram is used to provide the syntax and semantic to define the metamodel for data points by showing the relevant classes and their attributes.

4.2 Structural Perspective

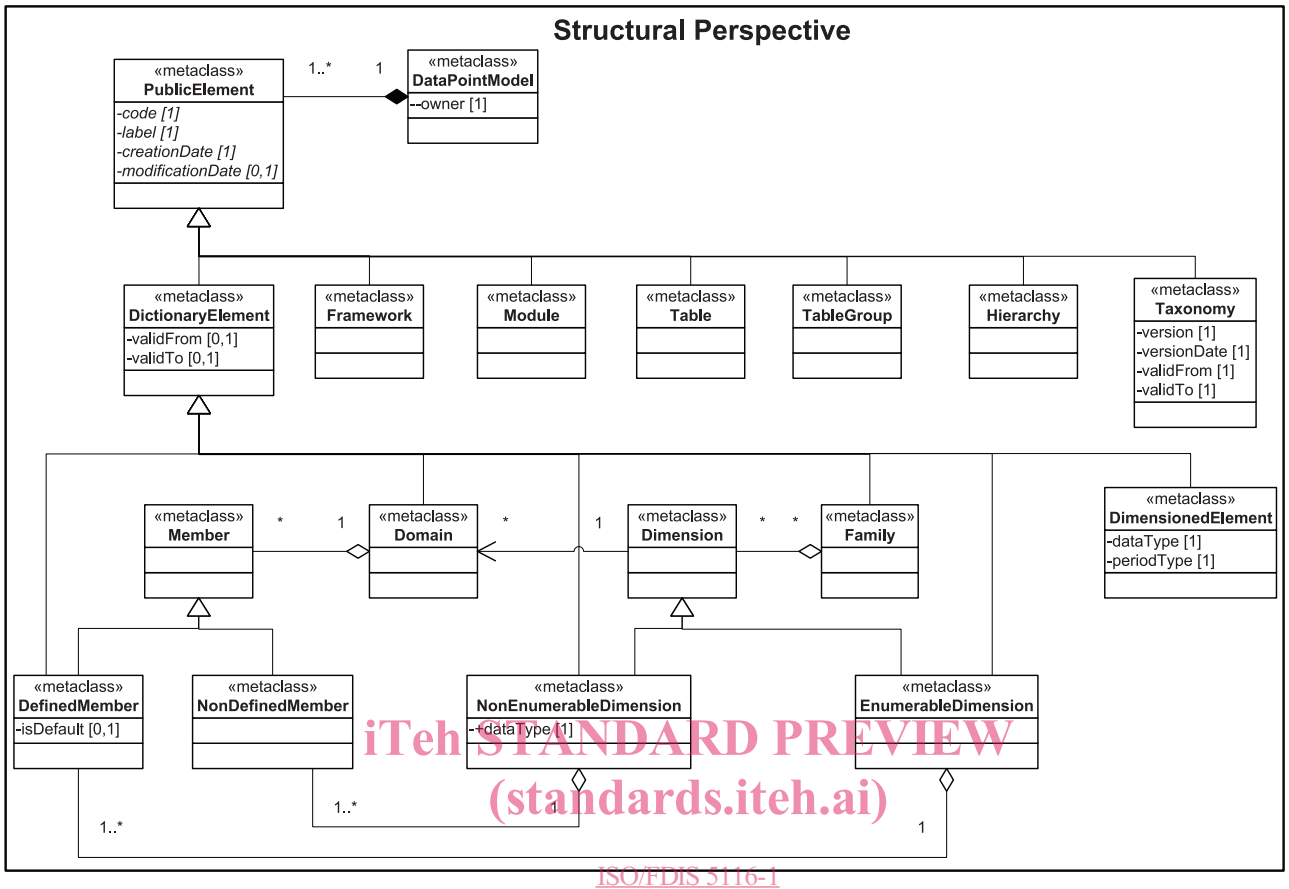

Figure 1 — Structural Perspective

4.3 Definition of the meta classes

4.3.1 DataPointModel

A DataPointModel defines structures of data describing the characteristics of the information exchanged in the context of supervisory reporting processes. A DataPointModel consists of a dictionary of business concepts and their properties, which are represented in tables and corresponding textual explanation. It identifies the content of each DataPoint by its granular components with a semantic meaning and its relation to other data points. A DataPointModel has a mandatory attribute *owner* who needs to be identified.

From an IT perspective, a DataPointModel can be interpreted by IT applications which enable: (1) a generation of data formats for the reporting process; or (2) the design of multidimensional database structures for the analysis of supervisory data, i.e. in data warehouses.

Contained elements: *PublicElement*

References:

meta class	multiplicity	description
PublicElement	one or more	References the collection of PublicElements owned by a DataPointModel.

4.3.2 PublicElement

A PublicElement is a generalization of a concept of the model. It is identified by a code and consists of an appropriate label. PublicElements have two additional attributes giving information about the dates of creation and modification. Each PublicElement is owned by an institution or an organization. PublicElements are abstract and need to be specified by their concrete sub classes like Frameworks or Tables.

References:

meta class	multiplicity	description
DataPointModel	exactly one	References the DataPointModel owning the collection of PublicElements.

4.3.3 DictionaryElement

DictionaryElement is an abstract class of elements that build the basis of the core concepts of a DataPointModel like DimensionedElements, Dimensions, Domains and DefinedMembers. They are derived from PublicElements and may define a currency period to support versioning and enable a filtering of obsolete elements by applications. The currency period is defined by two optional attributes *validFrom* and *validTo* which should ease the maintenance of elements of the DataPointModel in the course of time.

Superclass: *PublicElement*

4.3.4 Framework

A Framework is a business term common to a group of business users. It consists of reporting regulations for a domain-specific scope of information, like COREP, FINREP or Solvency II.

Currently, the information requirements of a Framework are structured through business templates to ease the understanding for the reporting entities that are required to submit the information to their supervisor. A business template is a collection of supervisory data ordered in a representation that is fitting to the business domain. On the basis of business templates, users are able to understand the context and relationships among the required data. The business rules defined by the reporting entities are also in the reporting regulations. Some rules are incorporated in the design of the business templates, e.g. the detailed information which is part of a summation.

A DataPointModel can refer to one or more supervisory Frameworks. Information should be given about which Framework the defined elements of the DataPointModel refer to.

Superclass: *PublicElement*

4.3.5 Table

A Table reflects the structure of a business template or represents an individual view of supervisory data based on a specific business context. Since business templates are used for the communication between supervisors and reporting entities, DataPoints are grouped in Tables in a DataPointModel to reconstruct the business templates for presentational purposes.

Therefore, a DataPointModel must contain presentational information to reconstruct these defined tables.

A Table consists of the combination of one, two or three Axes, which form TableColumns (in the X-Axis), TableRows (in the Y-Axis), and TableSheets (in the Z-Axis). A duplication of Tables is indicated by two or more TableSheets. Axes can be built on the basis of a set of DictionaryElements that could already be defined in a Hierarchy. The combination of the DictionaryElements in each Axis defines a Cartesian product which represents the set of DataPoints reflected in a Table. Tables are normalized from a dimensional perspective, and reflect the design constraint that a DictionaryElement can only be associated with one Axis.

Superclass: *PublicElement*

4.3.6 TableGroup

A TableGroup is a set of Tables that represents a business template. A TableGroup is created when a business template defines more than one table to reflect the business context. A TableGroup also needs to be created when the business template refers to the same dimension-member combinations in more than one axis. The business template is to be split into two or more Tables to prevent that the same Dimension is associated with a DataPoint more than once.

Superclass: *PublicElement*

4.3.7 Hierarchy

Members as well as DimensionedElements can be arranged in Hierarchies to represent the relationships to one another. In mathematical terms, a Hierarchy is a rooted tree that provides the information if a Member is at the top level, below another Member, or at the same level. Financial information is often split up into different segmental breakdowns, which represent Dimensions in multidimensional terms. If the Members of a Dimension share the same level of detail, they could be represented as a flat list. But often the Members relate to each other, i.e. in a parent-child relationship, and so they form natural hierarchies. The information about the location of a Member in a Hierarchy of a Dimension improves its understanding. Furthermore, Hierarchies can be used to define rules for calculations or aggregations. In the DataPointModel, a Hierarchy forms a set of DefinedMembers of an EnumerableDimension arranged in a hierarchical disposition.

Superclass: *PublicElement*

4.3.8 Taxonomy

A Taxonomy combines the components for a version of the DataPointModel for a given period of time. Its currency period is defined by the attributes *validFrom* and *validTo*. By creating a relation between Taxonomy and DictionaryElements, Tables and Hierarchies, a set of valid DataPointModel components are being created. PublicElements like Table and Hierarchy can be reused when they have not been modified since the last Taxonomy version.

Superclass: *PublicElement*

4.3.9 Module

A Module is a group of DataCubes that carry related semantics and may serve the reporting process. Modules define sets of business information that should be reported together, i.e. to conduct validation rules that are defined across DataCubes.

Superclass: *PublicElement*

4.3.10 Dimension

A Dimension is a data set of one characteristic area which is composed of individual and non-overlapping data elements. In the context of a DataPointModel, Dimensions are used to group information in a meaningful way. Dimensions are used to define “by” conditions and provide structured information to describe a DataPoint in detail. A Dimension must refer to a Domain. Whereas the DimensionedElement represents the quantitative aspects, the qualitative aspects are described by Dimensions. The data elements given to Dimensions are called Members.

Superclass: *DictionaryElement*

References:

meta class	multiplicity	description
Domain	zero or more	References a collection of Domains associated with a Dimension.
Family	zero or more	References the Families owning a collection of Dimensions.

4.3.11 Domain

A Domain is a classification system to categorize items that share a common semantic identity. A Domain provides, therefore, an unambiguous collection of items in a value range. The items of a Domain can have a definite, and therefore countable, number of items, or an infinite number of elements that follow a specific (syntax) pattern.

Contained elements: *Member*

4.3.12 EnumerableDimension

An EnumerableDimension is a subclass of Dimension that specifies a finite number of Members.

Superclass: *DictionaryElement, Dimension*

Contained elements: *DefinedMember*

References:

meta class	multiplicity	description
DefinedMember	one or more	References the set of DefinedMembers owned by an EnumerableDimension.

4.3.13 NonEnumerableDimension

A NonEnumerableDimension is a subclass of Dimension that specifies an undefined number of Members in the Dimension. The NonEnumerableDimension defines syntactic constraints on the values of the Members, i.e. a dataType or a specific pattern.

Superclass: *DictionaryElement, Dimension*

Contained elements: *NonDefinedMember*

References:

meta class	multiplicity	description
NonDefinedMember	one or more	References the set of NonDefinedMembers owned by a NonEnumerable-Dimension.

4.3.14 Member

4.3.14.1 Introduction

A Member is the data element that is given to a Dimension. Members can be grouped in Domains. Members in a Domain share certain semantic identity, just like the set of Members in a Dimension.

4.3.14.2 DefinedMember

A DefinedMember is discrete and countable. These Members can be explicitly listed in an enumeration. The meta class DefinedMember has an optional attribute *default*.

Superclass: *DictionaryElement, Member*