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**Improving transparency in  
financial and business reporting —  
Harmonization topics —**

Part 3:  
**Mapping between DPM and MDM**



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## 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](http://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](http://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](http://www.iso.org/iso/foreword.html).

This document was prepared by the European Committee for Standardization (CEN) (as CWA XBRL 005) and was adopted with the following modifications by Technical Committee ISO/TC 68, *Financial services*, Subcommittee SC 9, *Information exchange for financial services*.

- [Clause 2](#), Normative references, 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.

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](http://www.iso.org/members.html).

# Introduction

## 0.1 General

This document aims to provide an introduction to the topic of creating a conceptual model for storing multidimensional data which is received as XBRL instances that follow the rules defined by European taxonomies published by the European Banking Authority (EBA) or by the European Insurance and Occupational Pensions Authority (EIOPA).

Disclaimer: The Multidimensional Data Model (MDM) presented in this document is intended to be a starting point for a subsequent modelling process to be adjusted and extended to specific analytical or transactional needs. It solely refers to the concepts of Data Point Model (DPM) and European XBRL Taxonomy Architecture (EXTA), which build the basis of European supervisory reporting.

The structure of the data model is based on meta classes, introduced in part 1 and 4 of the CWA1 document [26]. The data model represents a relational model using Relational Online Analytical Processing (ROLAP). In this document UML data structures of a DPM are used because its comprehension will be easier. With the UML class model representing the description of the European filing rules, this document visualizes the mapping between UML meta classes and their correspondence in the form of database tables in the MDM.

This document consists of eight sections, save the bibliography. Section one explains working with a Multidimensional Data Model as a step towards working with the Relational Data Model. Section two makes a study of the architecture of XBRL, the databases and their aims, requirements and preconditions in catering for XBRL. Section three defines the conditions used for mapping from DPM to MDM. Section four is detailing point by point the mapping. Section five shows the metamodel defined by the European Banking Authority (EBA) through the FINREP (Financial Report) and COREP (Common Solvency Report) taxonomies and its mapping into MDM. Section six displays the MDM implemented in a relational database. Sections seven and eight show two implementation examples.

## 0.2 Objective

The objective of this sample MDM is to provide a starting point into the topic of mapping DPM and XBRL instance structures into a multidimensional database. Based on an easily comprehensible example, more complex issues are addressed that would need to be taken into account by defining an MDM for production use.

## 0.3 Target audience

This document is aimed at users of European supervisory taxonomies that have the need to store reporting data based on these data definitions and to retrieve them for analytical or transactional purposes. Database experts should get detailed information about the specifics to be taken into account when modelling multidimensional database structures for storing supervisory data based on XBRL. Therefore, the audience of this document might be financial or economic institutions, agencies or universities with the intention to provide micro or macro prudential analysis on supervisory data.

## 0.4 Relationship to other work

The reader of this document is expected to be familiar with the principles of data modelling, having a thorough understanding of the concept of DPM as well as basic knowledge of XBRL. The reader is also expected to have knowledge in creating conceptual models for relational and multidimensional databases.



# Improving transparency in financial and business reporting — Harmonization topics —

## Part 3: Mapping between DPM and MDM

### 1 Scope

This document aims to provide an introduction to the topic of creating a conceptual model for storing multidimensional data which is received as XBRL instances that follow the rules defined by European taxonomies published by the European Banking Authority (EBA) or by the European Insurance and Occupational Pensions Authority (EIOPA).

### 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/>

**NOTE** The terms and definitions used in the mapping with Data Point Model are inspired by vocabulary already known from their use for describing multidimensional databases and Data Warehouses.

### 4 Introduction to the Multidimensional Data Model

The multidimensional database is primarily used to create OLAP (Online Analytical Process) applications and their databases using a fact table and set of dimensions. A multidimensional structure stores multidimensional data, that is to say, cubes. A cell or fact is an intersection consisting of elements that form the dimension(s) which in turn form a cube. A cell can have zero or more measures, but in this document only one measure is taken into account.

The Multidimensional Data Model (MDM) is used instead of the Relational Model, because the European architecture of economic-financial reports is relying on dimensions heavily, which makes implementation in MDM the logical choice. Moreover, the performance of queries is better in this type of database.

The goal of this document is to store the Data Point Model in a database, in an efficient, easy way.