Semantics for Object Modelers, Application Developers, and Data Architects with “other” data modeling tools

Financial Industry Business Unified Model (FIBUM)
An addendum to the introduction to the ontology-derived Enterprise Data Model.

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FIBO is the authoritative model of Financial Industry concepts, their definitions, and relations.

The Enterprise Data Management Council (EDMC) is the Global Association of more than 200 Financial Institutions (FI).

EDMC members developed the Financial Industry Business Ontology (FIBO), a business conceptual model. FIBO is the authoritative reference standard.

FIB-DM is the FIBO as a Conceptual Data Model. The Open Source core version provides more than one thousand entities derived from FIBO Foundation, Business Entities, and Finance Business & Commerce modules.
You work at a Financial Institution and already embrace model-driven development, industry standards, and reference models.

Finance business stakeholder and expert with a working knowledge of Entity-Relationship and Ontology diagrams.

Data or Application Architect experienced in Enterprise Reference models. You may have used FIBO design patterns and definitions.

As an Ontologist with an in-depth understanding of the FIBO, you already use the reference ontology for your design and want to spread adaptation across your enterprise.
There are still gaps for enterprise-wide FIBO leverage.

More than 100 people downloaded the model in the first three weeks since launch.

Most users are from Financial Institution on PowerDesigner and ERWin data modeling tools.

FIB-DM is a PowerDesigner Conceptual Data Model (CDM).

Many downloaders with “other” data modeling tools cannot import the native PowerDesigner model file.

Object Modelers and Application Architects need a class model.
FIBUM is the bridge across the chasm.

1075
UML classes

Open Source
# Semantic Model Driven Architecture

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Download, install and a quick tour

This presentation is an addendum to the FIB-DM Introduction tutorial, covering specifics of the UML Model. Watch and read the complete data model introduction about the ontology to data model transformation and the model structure. [https://fib-dm.com/tutorial-1-introduction/](https://fib-dm.com/tutorial-1-introduction/) or [https://www.linkedin.com/showcase/fib-dm/](https://www.linkedin.com/showcase/fib-dm/)

About the UML-XMI download file

The UML class model in Sparx Enterprise Data Architect.
Download FIBUM Core

GO to the FIB-DM download page, https://fib-dm.com/data-model-download/, click on the download widget or menu item.
Follow the download email instructions

Receive the email with the download links.

From: Service <service@fib-dm.com>
Sent: Sunday, August 18, 2019, 13:30
To: <esample@xyzbank.com>
Subject: FIB-DM download link

Thanks for your interest in the Financial Industry Business Data Model. Here are three download links:

- **PowerDesigner(CDM, conceptual data model)**
  PowerDesigner users download the CDM. Extract the model file from the ZIP archive and open the model.

- **PowerDesigner(LDM, logical data model)**
  For ERWin and other modeling tools with native PowerDesigner import, use the LDM.

- **UML XMI (Class Model)**
  For other tools use FIBUM, UML-XMI import.

I appreciate your feedback and screenshots.

Users of other modeling tools with XMI import click on the class model.
FIBUM XML file

Extract the contents of the ZIP directory.

The model file format is UML 2.2 (XMI 2.1)
Import the UML-XMI into the data modeling tool, here Sparx EA

We open Sparx EA and create a new project, “FIBUM import.”

In the menu select Publish and click on Import XML, Import, Package from XML.

The UML-XMI diagrams are tool-specific. The FIBUM XMI does not contain diagrams.

Study at the FIB-DM diagram galleries to better understand the FIBO design. Then re-create your favorite and new diagrams in your modeling tool. [https://fib-dm.com/diagrams/](https://fib-dm.com/diagrams/)
The FIBO in Sparx Enterprise Architect

The packages in the browser reflect the FIBO module structure.

Notice the CODT package and the stereotypes on packages and classes.
CODT package and stereotypes

The Configurable Ontology to Data-model Transformation is the process and technology to derive models from ontologies.

Tagged values are the UML equivalent to RDFS/OWL annotation properties, PowerDesigner extended attributes and ERWin user-defined properties. In UML 2, you can only apply tagged values to model elements that use a stereotype with a tag definition.

The CODT profile defines stereotypes for classes and packages with tagged values for FIBO annotation properties, lineage, and semantics.
FIBUM Package properties

The Package name is the Prefix of the ontology module. The Stereotype is OntModule for all FIBO-derived packages. The Alias is the logical English name.

The FIBO documentation uses RDFS/OWL annotation properties:

- Dublin Core
  [https://www.dublincore.org/specifications/dublin-core/dcmi-terms/](https://www.dublincore.org/specifications/dublin-core/dcmi-terms/)
- Semantic Metadata
- Resource Description Framework Schema
  [http://www.w3.org/2000/01/rdf-schema](http://www.w3.org/2000/01/rdf-schema)
- Simple Knowledge Organization System
  [https://www.w3.org/2004/02/skos/](https://www.w3.org/2004/02/skos/)
- FIBO and CODT defined annotation properties
  - FIBO Explanatory note
  - Ontology URI the lineage, traceability to the source ontology module.
  - Resource Name, the module code, or becomes the Package Name.
FIBUM Class properties

The Class Name derived from the ontology class `Prefix:Localname`. The value is the same as the FIB-DM Entity Code. The Alias is the logical English name, the same value as the FIB-DM Name. All ontology derived classes have the stereotype `OntClass`.

The FIBO documentation derived from RDFS/OWL annotation properties.

The group of Import tags provides lineage and traceability to the source ontology. We use the Resource Name (`Prefix:Localname`) for the UML Class Name. The URI is the link to the original FIBO class.

The Ontology group has semantic expressions beyond the UML Class model. Please refer to the FIB-DM tutorial for details.
From FIBO to FIB-DM, to FIBUM – how does CODT work?

The Configurable Ontology to Data-Model Transformation is basic ETL.

We extract metadata from the source ontology, transform ontology metadata into conceptual data model metadata, and load into the data modeling tool, PowerDesigner.

The extract process runs SPARQL on the ontology to get the metadata. PowerDesigner imports MS-Excel workbooks. The Transformation in between is a 2-step process using the patent-pending Metadata Sets.
The CODT Metadata Sets.

The Extract process populates the Ontology Metadata Sets for classes, object-, data properties, and annotations.

Step 1 transforms the ontology metadata and populates the generic ER representation. The Tool-specific metadata set is in PowerDesigner format. We serialize as MS-Excel, and directly load it into the tool. Step two is a simple conversion from generic ER to PowerDesigner objects, properties, and extended attributes.
Adding tool-specific metadata sets for Sparx EA

Sparx imports Comma Separated Value, CSV files. To support the Class Model transformation, we add Sparx-specific metadata sets and the step-two transformation rules. Both tool-specific metadata sets source from the same generic EA.

We use Sparx EA to generate the UML XMI.
Thanks for your interest, enjoy the model!

Good luck importing the FIBUM into your modeling tool and leveraging the FIBO in your organization.

Please
• Let me know of successful migration or issues
• Share your screenshots for a future compatible tools gallery.
• Huge models can be overwhelming. Contact me with questions about the FIBO content and design patterns.

jziemer@jayzed.com or LinkedIn posts and https://www.linkedin.com/showcase/fib-dm/

Holders of the Extended model license are funding the Open Source Core. Hence the Masterfile is PowerDesigner. Commercial interest for the UML model and other less widely used development tools drives more support for variations.