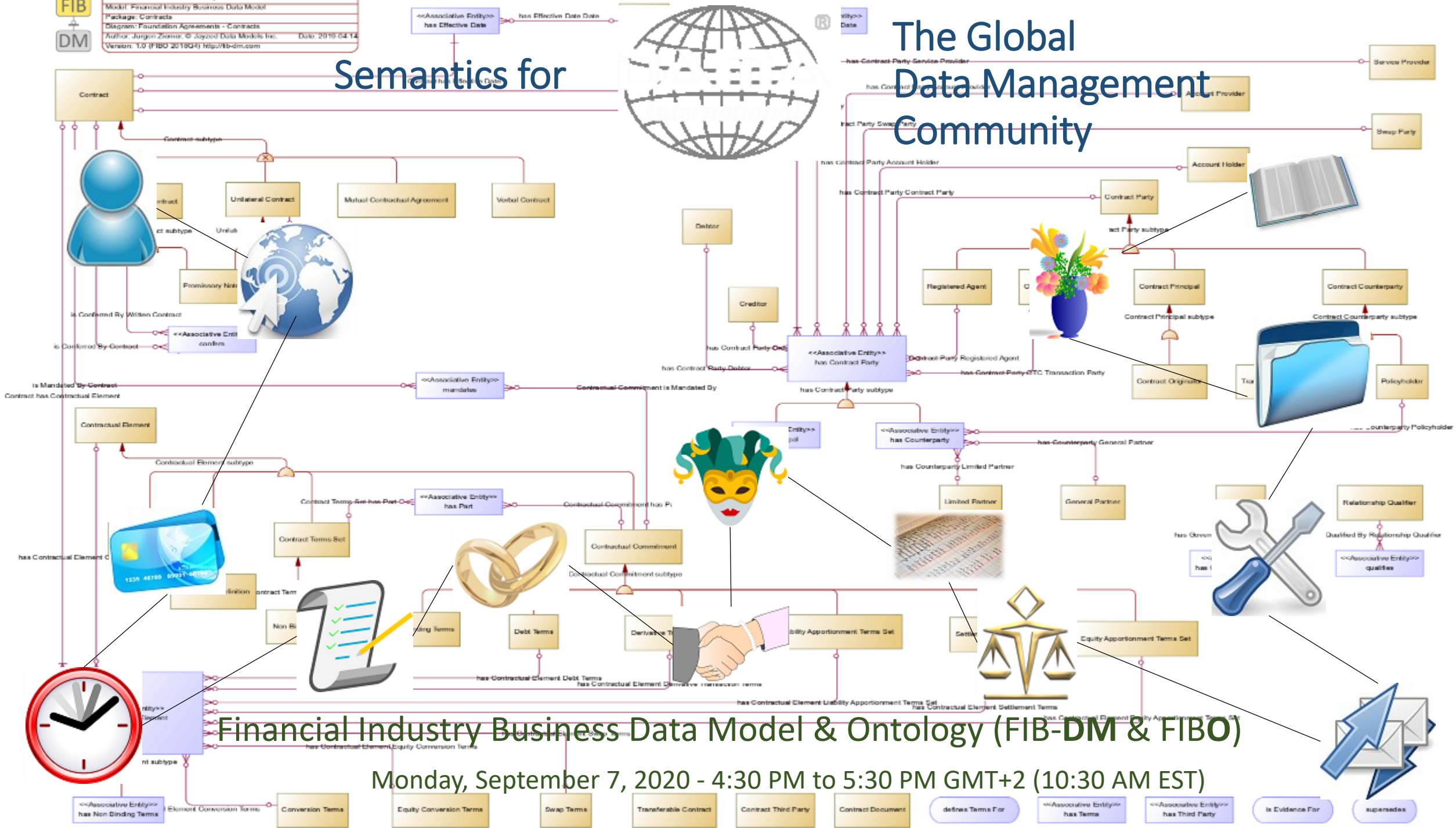


The Global Data Management Community

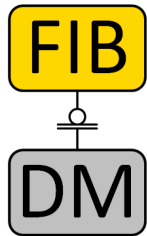


Monday, September 7, 2020 - 4:30 PM to 5:30 PM GMT+2 (10:30 AM EST)

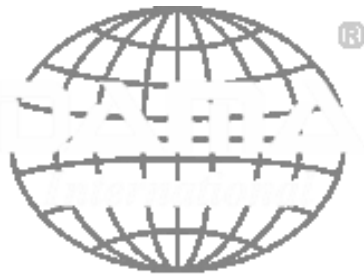
FIBO, FIB-DM, and this DAMA session



The Financial Industry Business Ontology, FIBO, is the most extensive Domain Ontology Schema.



The Financial Industry Business Data Model is the complete model-transformation of the industry-standard ontology into a Conceptual Data Model.
800 users downloaded the FIBO Data Model.



In June, the South Afrika chapter hosted a meeting about managing huge models in PowerDesigner with FIB-DM as an example. Participants wanted to learn more about the Finance Model.

You can view and download today's presentation and watch a replay of this session:
<https://fib-dm.com/semantics-for-dama-international/>



Finance key point

You work at a Financial Institution and already embrace model-driven development, reference models, and industry standards.



Data Architect experienced in Enterprise Reference models. You want to get started on the new industry-standard.



Ontologist with FIBO experience. Semantic technologies are still emerging at your bank. You want to promote FIBO concepts across your organization



Finance / Business / Management. You want to improve Information Management with a strategic path to semantic excellence.

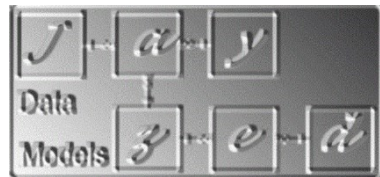


Presenter – ontologist and data architect



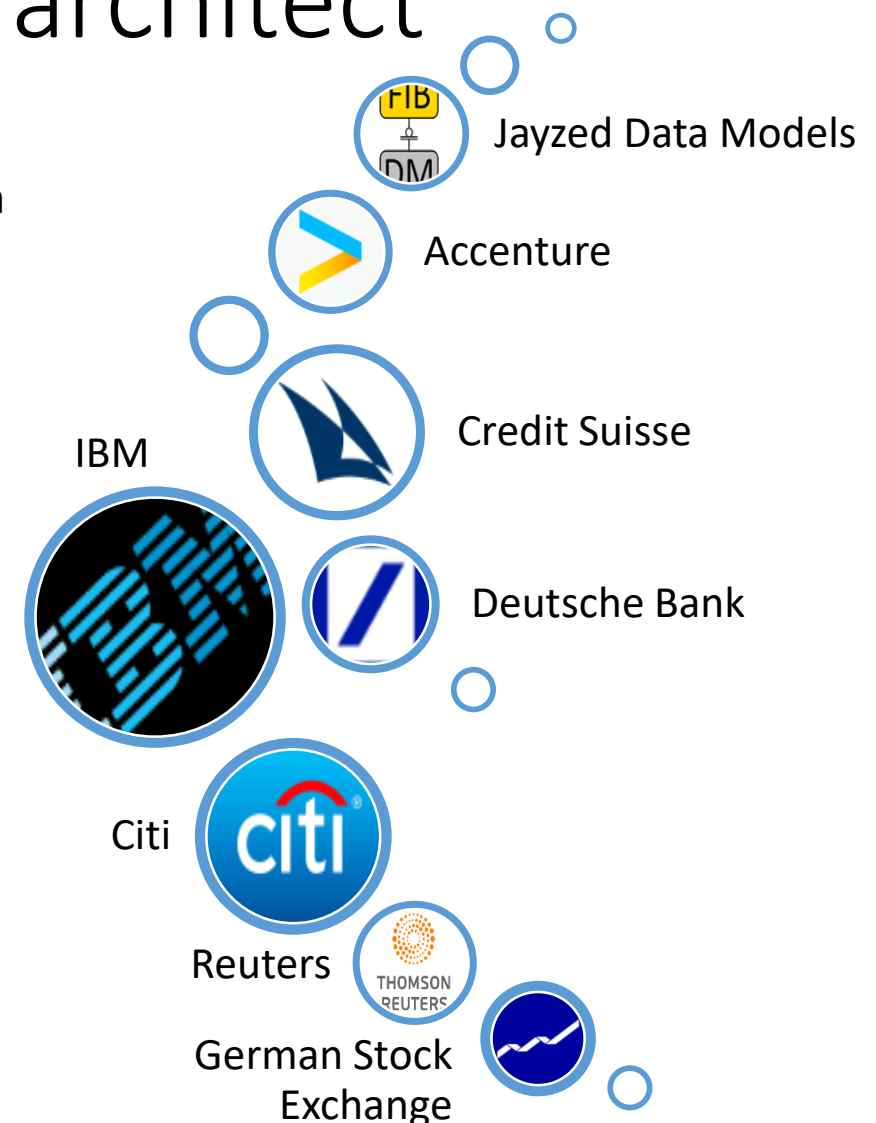
Jurgen Ziemer has 20 years of industry experience as a data architect and ontologist at leading Financial Institutions and service providers.

- Seven years as an IBM Software Group Consultant for the Banking and Financial Markets Data Warehouse (BFMDW) model at 45 banks in North America, Europe, and Asia.
- Four years were implementing BFMDW at Citi and Deutsche Bank.
- Contributor, reviewer, and speaker at FIBO conferences



Jayzed Data Models Inc. is a US consulting company incorporated in 1999.

Jayzed holds the FIB-DM copyrights and is the designated assignee of the Configurable Ontology to Data Model Transformation (CODT) Patent.



Finance key point

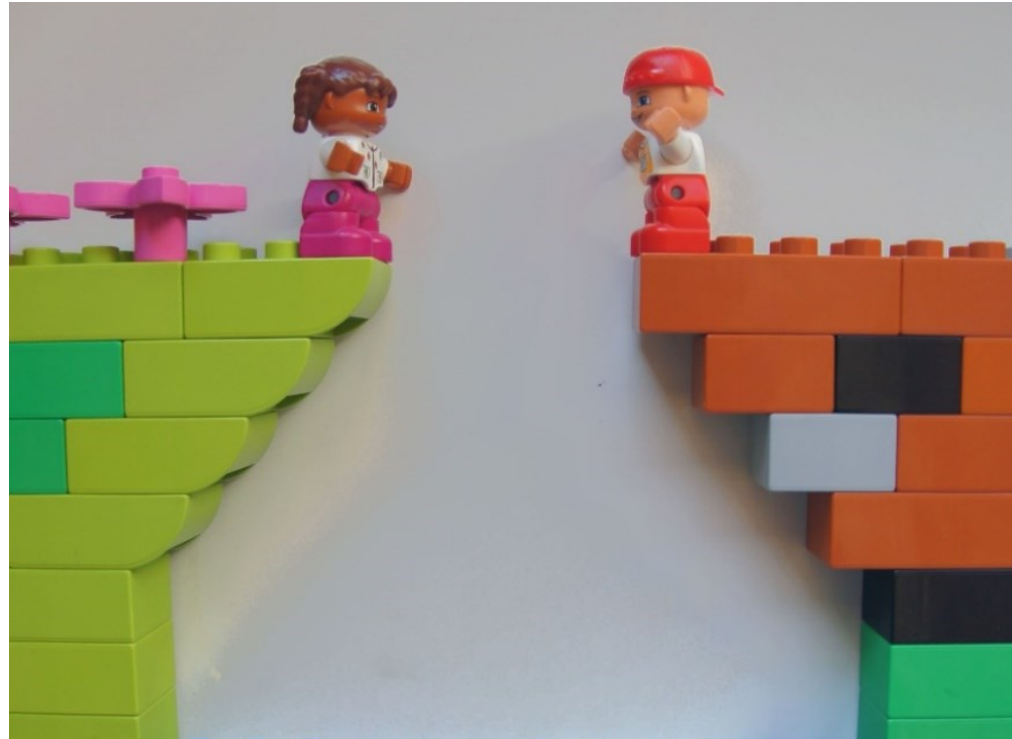
The Challenge:

There is a chasm between semantic and conventional data management.

Global Financial Institutions (FI) already implemented FIBO.

The EDMC specified FIBO in Ontology Web Language (OWL).

OWL runs on specialized databases, RDF (triple) stores



Midsized banks face high barriers - tooling and human expertise.

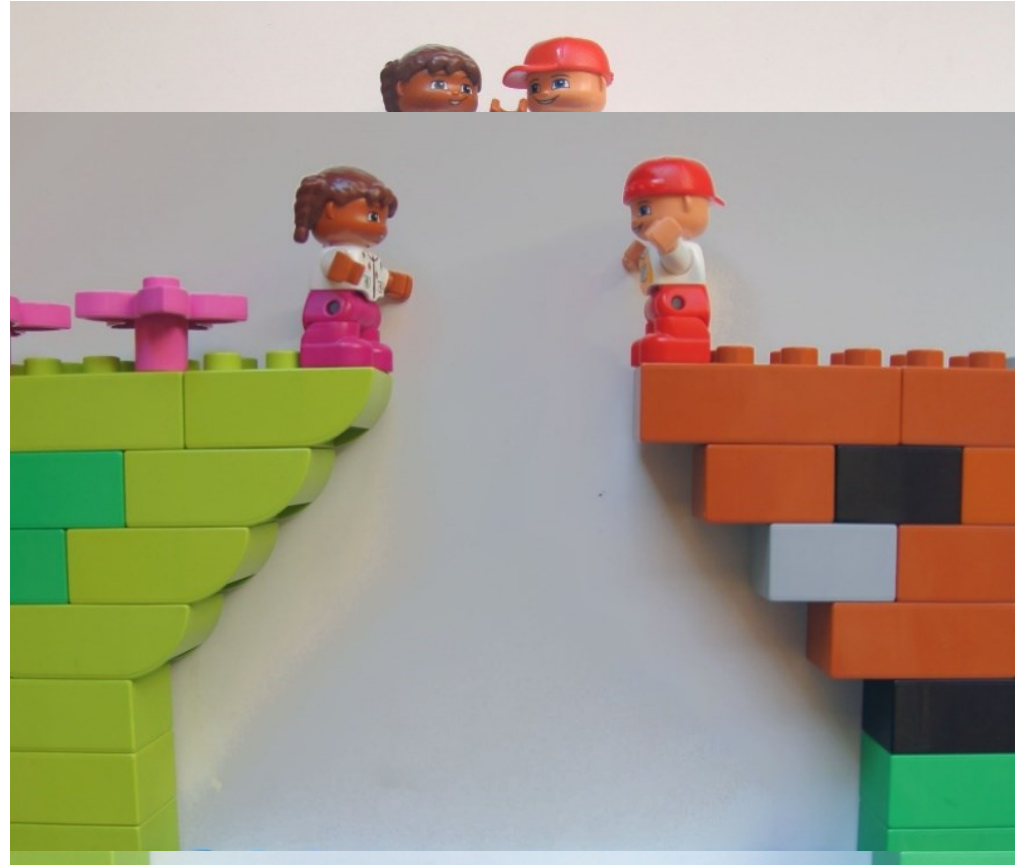
OWL is a complex language that needs highly specialized ontologists.

IT-departments must still support and design relational databases.



Finance key point

FIB-DM is the bridge across the chasm.

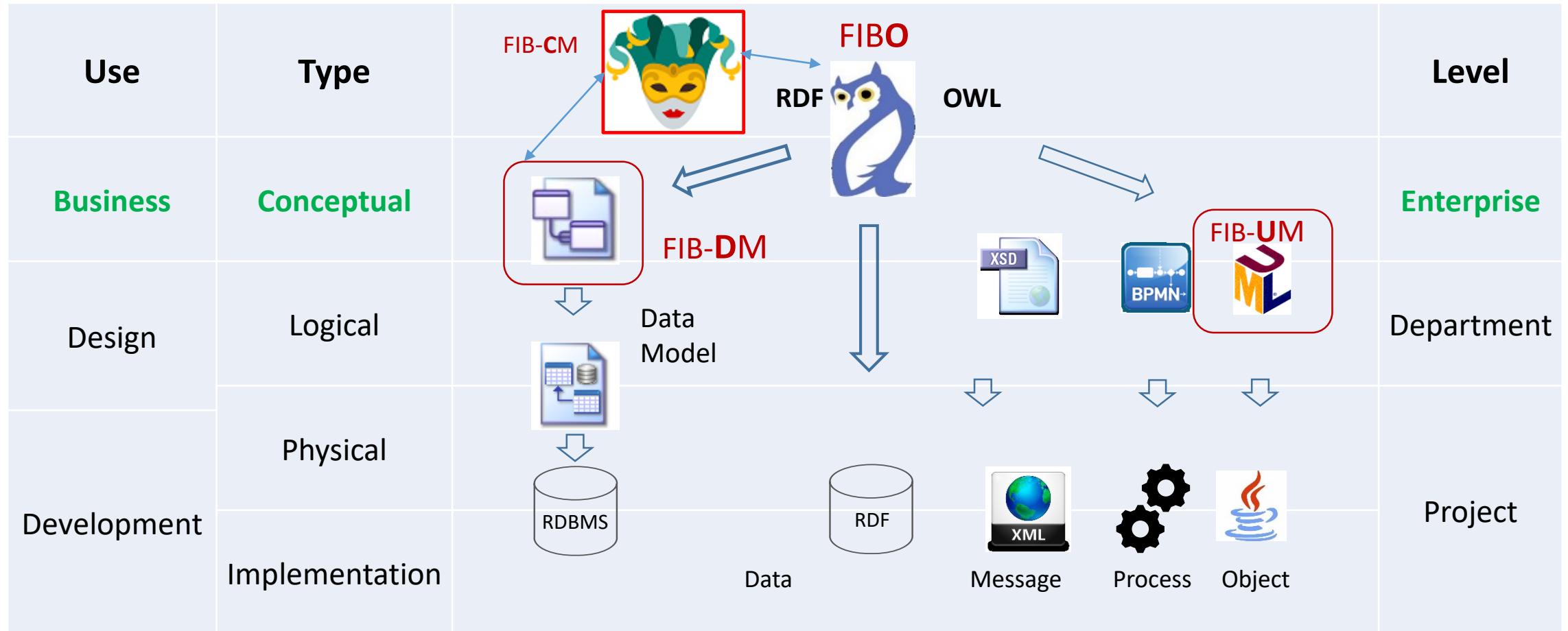


The Industry Standard is available in your Data Modeling tool.



The Vision:

Semantic Enterprise Information Architecture (SEIA)

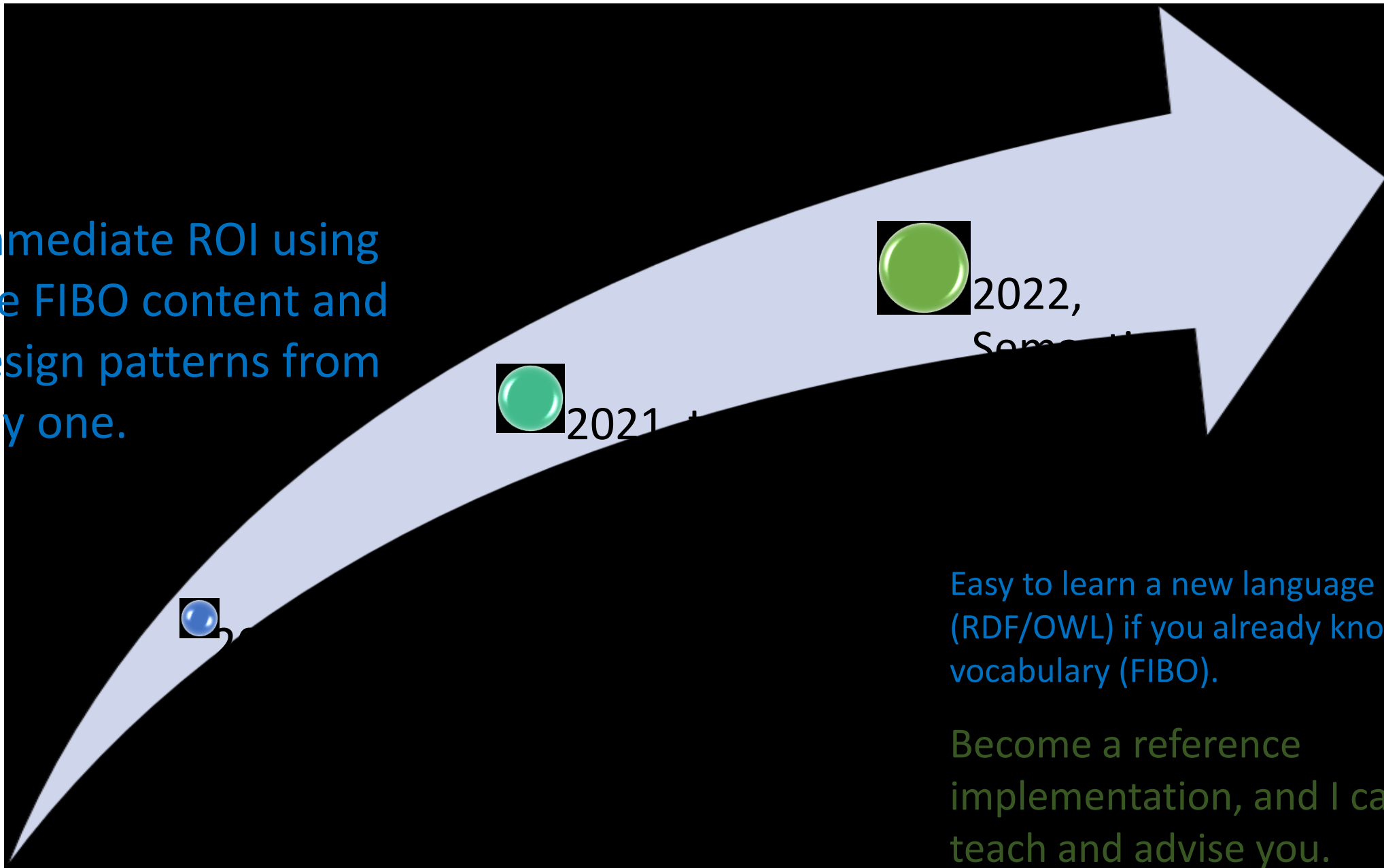


Finance key point

The Way:

Yo

Immediate ROI using
the FIBO content and
design patterns from
day one.



Finance key point

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



- Both EDMC and DAMA promote Data Management best practices.
- DAMA is the world's largest association of professionals, and not sector-specific.
- The Enterprise Data Management Council (EDMC) is the Global Association of over 200 Financial Institutions (FI).



“The Financial Industry Business Ontology (FIBO) is a **business conceptual model** developed by our members.”

*The EDMC membership Tier A starts at \$200 billion in assets under management. Midsize banks for FIB-DM licenses and this document are banks with assets between \$50 and \$200 billion.



Origins of CODT and FIB-DM

NY Bank needs Schema for a new Security Master System, trying to leverage FIBO for Logical Data Model.

Challenge: Data Architects are not familiar with RDF/OWL and have no experience in Protégé or Topbraid

Workaround: Ontologist writes SPARQL queries to extract metadata into MS-Excel spreadsheets.

CT AIM with Hedge Fund Ontology SEC Form PF assessments needs a relational platform

Challenge: Converting operational ontology of some 200 FIBO and hedge fund specific classes

Workaround: Manual transcription of graphs into ERWin diagrams.

Existing tooling chokes on very large ontologies and does not derive a useful Data Model.

Ontologists and Data Architects copy and paste manually.

So, I developed a better transformation and FIBO data model.



Data Architect



Ontologist

<https://fib-dm.com> © Jayzed Data Models Inc. 2020

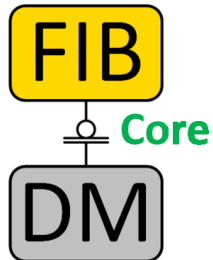
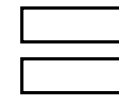
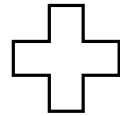
Premium / Freemium is the FIB-DM Funding Model



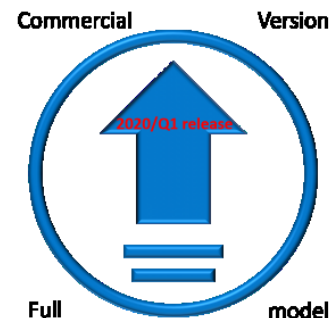
Learn French
10 Free Lessons

10 more
Premium Lessons

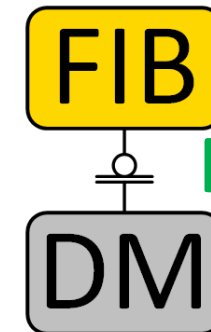
Freemium
Marketing /Pricing



4 modules, 1029 entities



8 more modules, 3534 entities



2020/Q2
Full
release

4,568 entities



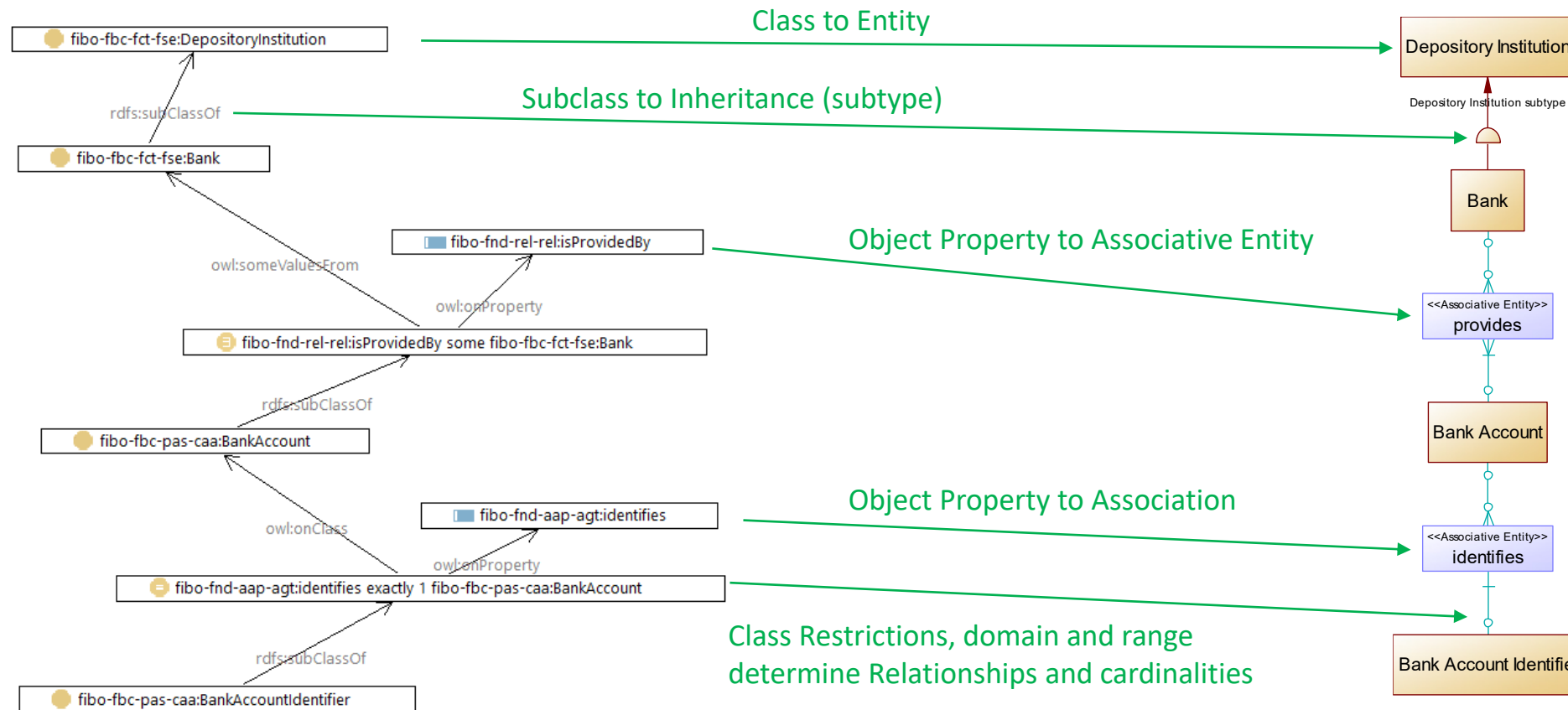
Finance key point

Ontology-derived Data Model

Ontology graph

Transformation/mapping

Conceptual Data Model



CODT patent drawing FIG.1 System (removed numerals and added colors)



Data Architect

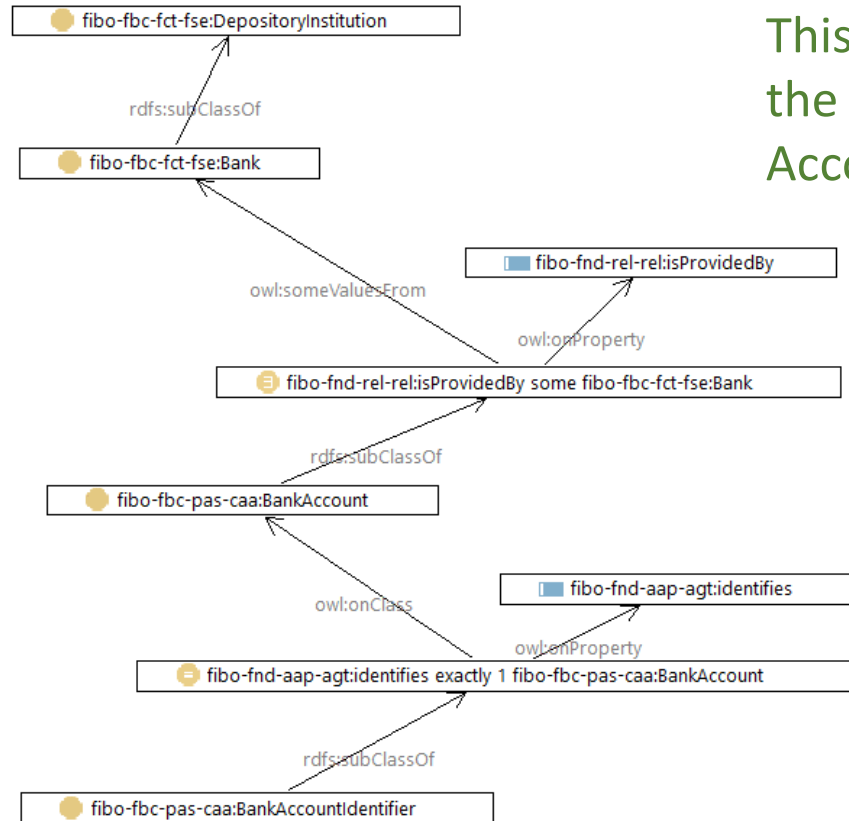


Ontologist

<https://fib-dm.com> © Jayzed Data Models Inc. 2020

Ontology-derived Semantic Data Model

Ontology graph

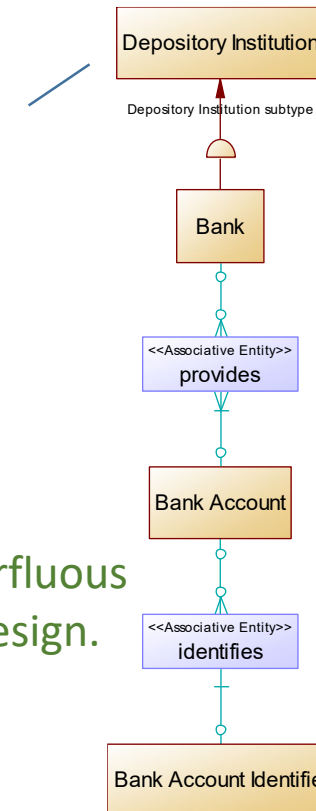


This entity-relationship diagram is the best representation of the Bank Account, its provider, and ID.



There are no missing and no superfluous entities and relationships in the design.

Conceptual Data Model



PowerDesigner

File Edit View Repository Tools Window Help

Object Browser

Filter:

- Financial Industry Business Data Model (Normative)
- Financial Industry Business Data Model (Informative)
- FIBO Business Entities
- FIBO Business Processes
- FIBO Collective Investment Vehicles
- FIBO Corporate Actions & Events
- FIBO Derivatives
- FIBO Finance Business & Commerce
- FIBO Foundation
- FIBO Indicators
- FIBO Loans & Mortgages
 - LOAN-Loan Contracts
 - LOAN-Loan Types
 - LOAN-Loans
 - LOAN-Loans Temporal
- Diagram_1
- FIBO Market Data
- FIBO Securities
- LCC-Countries
- Simple Knowledge Organization System
- Specification Metadata
- Association Hierarchy - has
- Data Items
- Entities
 - ABAIIN Registry Entry
 - ABAIIN Registry Entry only applies To (fnd)
 - ABARTN Registry Entry
 - ABARTN Registry Entry only applies To (fnd)

315 Packages

Association Hierarchy - has

Output

Result List

Checking package ...

Checking data item ...

- Data Item name uniqueness
- Data Item code uniqueness
- Detect differences between data item and associated domain
- Detect inconsistencies between check parameters

Checking relationship ...

- Entity Attribute name uniqueness
- Entity Attribute code uniqueness
- Relationship name uniqueness
- Relationship code uniqueness
- Reflexive dependency
- Reflexive mandatory
- Bijective relationship between two entities
- Name uniqueness constraint between many-to-many relationships

Checking inheritance ...

- Inheritance name uniqueness
- Inheritance code uniqueness
- Existence of inheritance link

Checking extended object ...

- Extended Object name uniqueness
- Extended Object code uniqueness

0 error(s), 0 warning(s).

Model is correct, no errors were found.

List Report Properties - Entity Code Name Comment Stereotype ...

General Column Filter Row Filter Content Result Sets Definition

Code	Name	Comment
fib-cae-ce-cae	Worthless Security Bookin	Booking out of some worthless security by
fib-fbc-dae-cre	Write Down	Obligation-specific credit event whereby th
lcc-lr:WritingSy	Writing System	A system for writing a language, including t
fib-fnd-agr-ctr	Written Contract	Formal contract that is written and signed b
lcc-lr:WrittenLa	Written Language	The representation of a language via a wri
fib-der-der-fwd	XETRA	
fib-fbc-fi-ip:Yiel	Yield	Return on the investor's capital investment
fib-md-dbt-py:	Yield Calculation Formula	The formula used in determining the Yield.
4552 fib-md-dbt-py:	Yield Calculation Method	The method by which the yield is calculate
4553 fib-md-dbt-py:	Yield Calculation Method	A subtype of associative entity has Argume
4554 fib-md-dbt-py:	Yield Calculation Method	A subtype of associative entity has Compo
4555 fib-fbc-fi-ip:Yiel	Yield Spread	The spread between the yields of two item:
4556 fib-md-dbt-py:	Yield To Next Put	
4557 fib-sec-dbt-bn	Zero Coupon And Original	Call feature specific to a zero coupon or ori
4558 fib-sec-dbt-bn	Zero Coupon Bond	Bond issued with a coupon rate of zero and
4559 fib-sec-dbt-bn	Zero Coupon Bond Call	Call event associated with a zero coupon c
4560 fib-sec-dbt-bn	Zero Coupon Terms	Terms for payment of interest on a zero cou
4561 fib-fnd-plc-usp	ZIP Code	Five-digit code code assigned to a delivery
4562 fib-fnd-plc-usp	Zip Code Scheme	System used in the U.S. to facilitate the de
4563 fib-fnd-plc-usp	ZIP Plus4Code	Nine-digit number consisting of five digits, e

More >> OK Cancel Apply Help

Ready

The World's largest Data Model

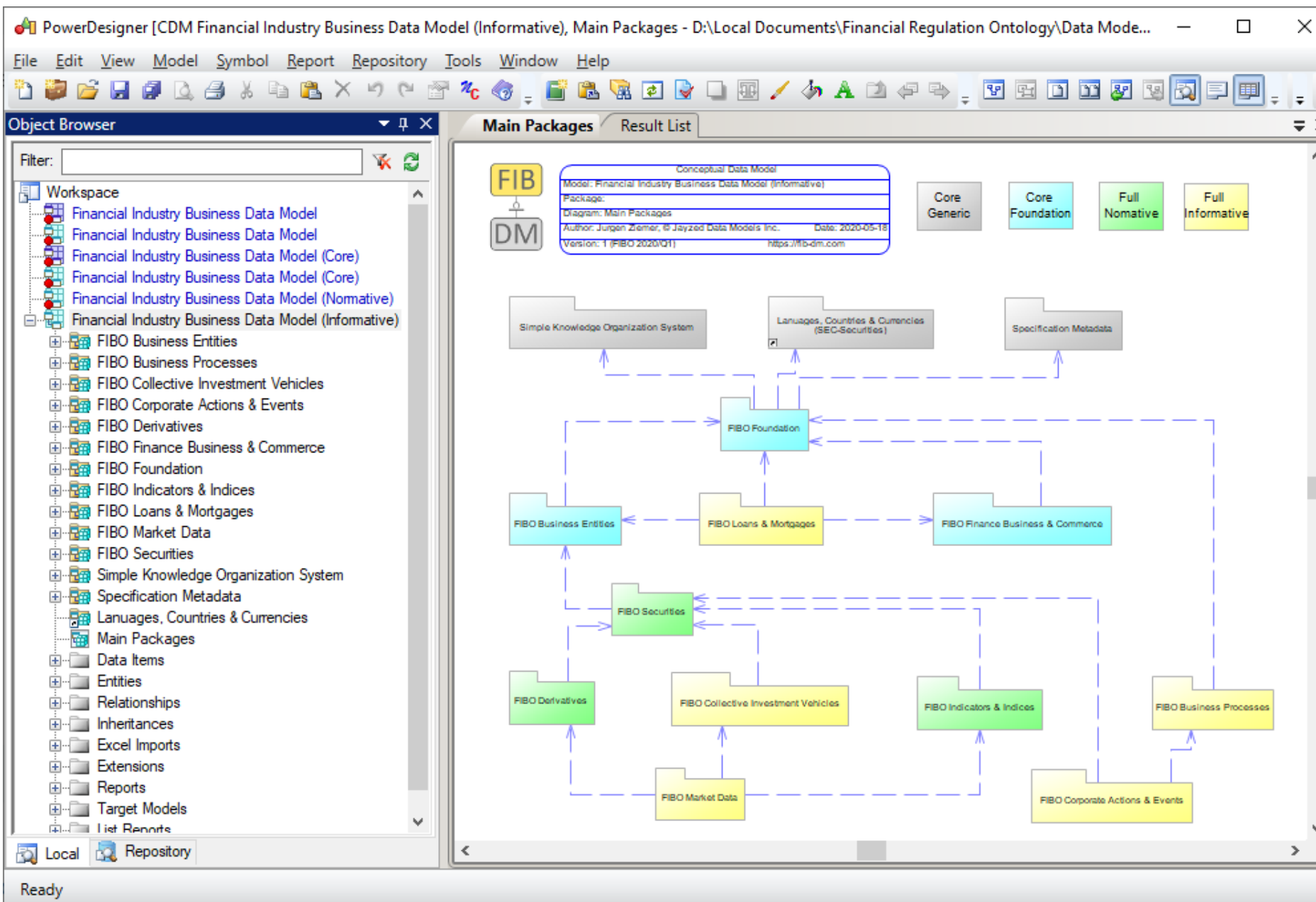
4563 Entities, 5220 Relationships

Packages

A colossal data model is intimidating.

FIB-DM training teaches two parallel approaches to master the content: **Packages** and **Concept Hierarchies**.

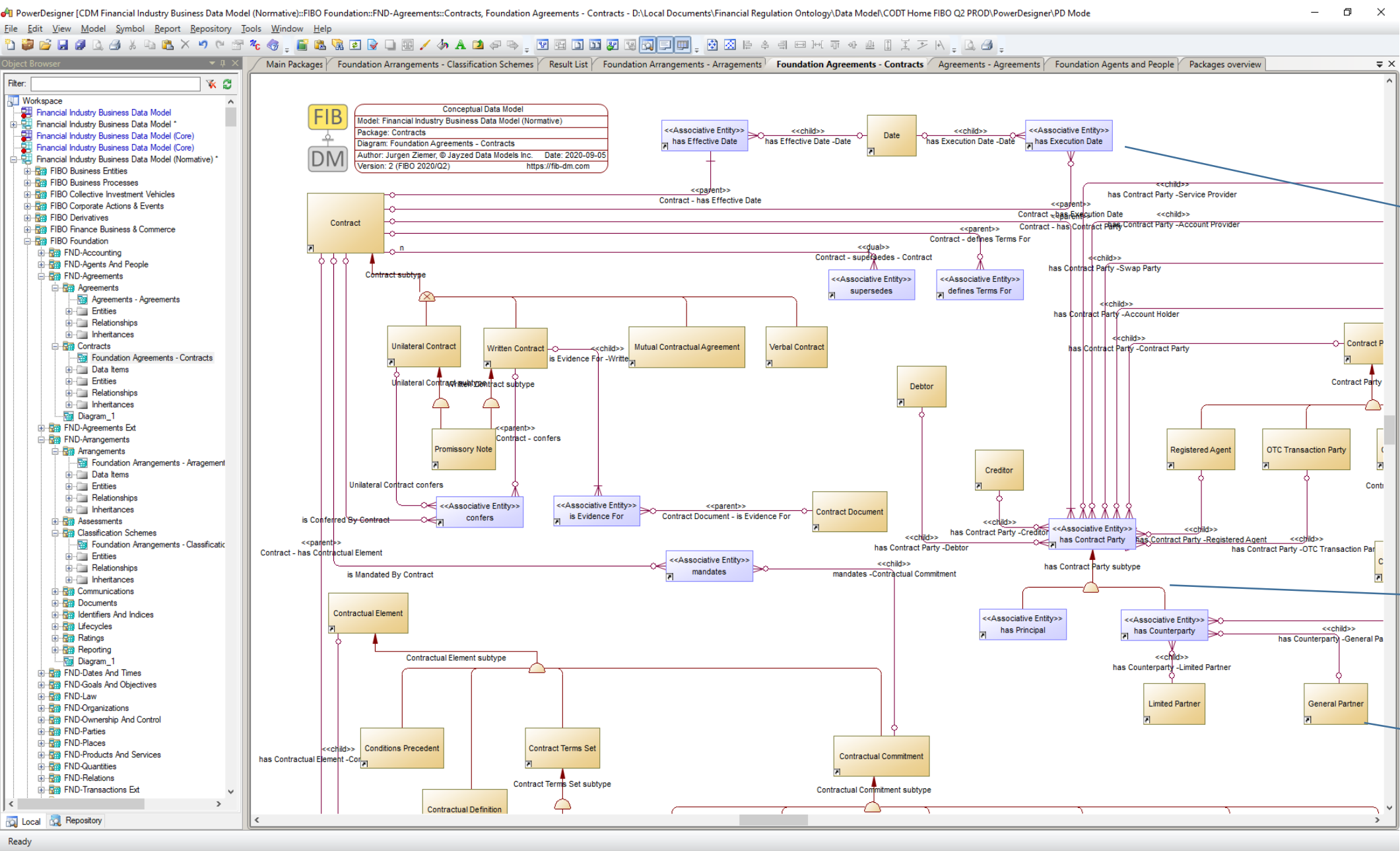
The package approach is to understand FIBO Core, and then to proceed to subject areas.



Data Architect



Ontologist



Package Diagram

Associative Entities are blue

Associative Entities have deep hierarchies

Base entities are orange

Entity properties

The Name is the ontology class *Localname*, converted from Camel Case to LDM naming convention (capitalized with space between words).

The Code transforms from the ontology class *Prefix: Localname*.

The Comment populates from the class annotation RDFS comment and SKOS definition.

There are two particular tabs for ontology derived data models, Annotations and Lineage.

The screenshot shows the 'Entity Properties' dialog box for the entity 'Payment Obligation' (fibonacci-fnd-pas-psch:PaymentObligation). The dialog has several tabs: 'General', 'Attributes', 'Data Protection', 'Identifiers', 'Mapping', 'Annotations', 'Lineage', 'Definition', and 'Rules'. The 'Annotations' and 'Lineage' tabs are circled in blue. The 'General' tab is active, showing the following fields:

- Name:** Payment Obligation
- Code:** fibo-fnd-pas-psch:PaymentObligation
- Comment:** a legally enforceable duty to pay a sum of money, or agree to do something (or not to do something), according to the terms stated in a contract
- Stereotype:** (empty dropdown)
- Number:** (empty text box) ☒ Generate
- Parent entity:** Commitment
- Keywords:** (empty text box)

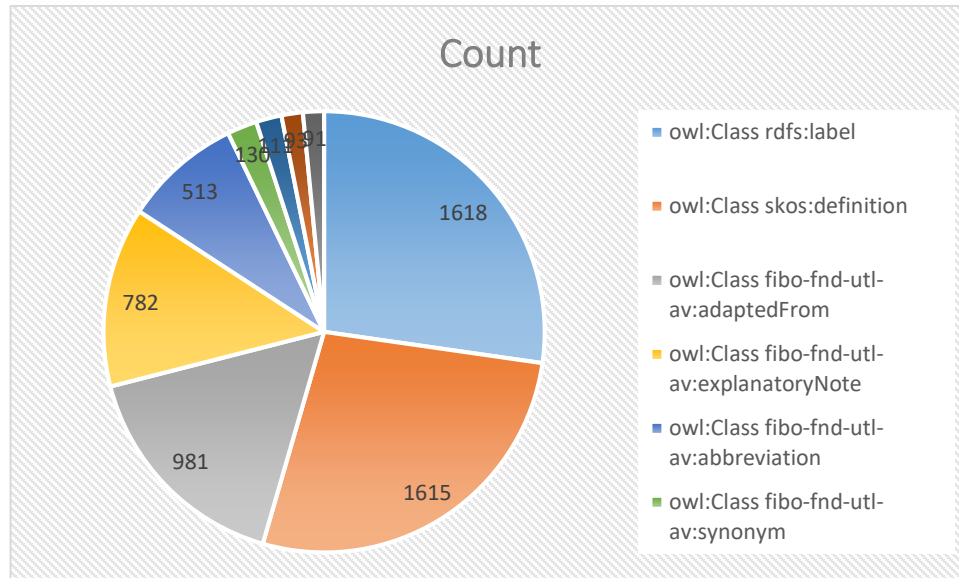
At the bottom, there are buttons for '<< Less', 'OK', 'Cancel', 'Apply', and 'Help'.



Entity annotations

FIBO has extensive documentation captured in annotation properties.

The chart shows the number of classes with annotated documentation.



Entity Properties - Payment Obligation (fibo-fnd-pas-psch:PaymentObligation)

Related Diagrams	Extended Attributes	Dependencies	Traceability Links	Version Info				
General	Attributes	Data Protection	Identifiers	Mapping	Annotations	Lineage	Definition	Rules
<p>Source: <input type="text"/></p> <p>Abbreviation: <input type="text"/></p> <p>Adapted From: <input type="text" value="Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012"/></p> <p>Definition Origin: <input type="text"/></p> <p>Explanatory Note: <input type="text"/></p> <p>Synonym: <input type="text"/></p> <p>Usage Note: <input type="text"/></p> <p><input type="checkbox"/> Deprecated</p> <p>RDFS Comment: <input type="text"/></p> <p>Defined By: <input type="text"/></p> <p>Label: <input type="text" value="payment obligation"/></p> <p>See Also: <input type="text"/></p> <p>Alt. Label: <input type="text"/></p> <p>SKOS Definition: <input type="text" value="a legally enforceable duty to pay a sum of money, or agree to do something (or not to do something), ac"/></p> <p>Editorial Note: <input type="text"/></p> <p>Example: <input type="text" value="the duty of a borrower to repay a loan, and the legal right of a lender to enforce payment"/></p> <p>Note: <input type="text"/></p> <p>Pref. Label: <input type="text"/></p> <p>Scope Note: <input type="text"/></p> <p>Direct Source: <input type="text"/></p> <p>Related Specification: <input type="text"/></p>								

<< Less



Data Architect



Ontologist

Entity lineage

The Lineage tab captures ontology metadata of the source class. The extended attributes provide traceability into the ontology and preserve semantics beyond the entity-relationship model.

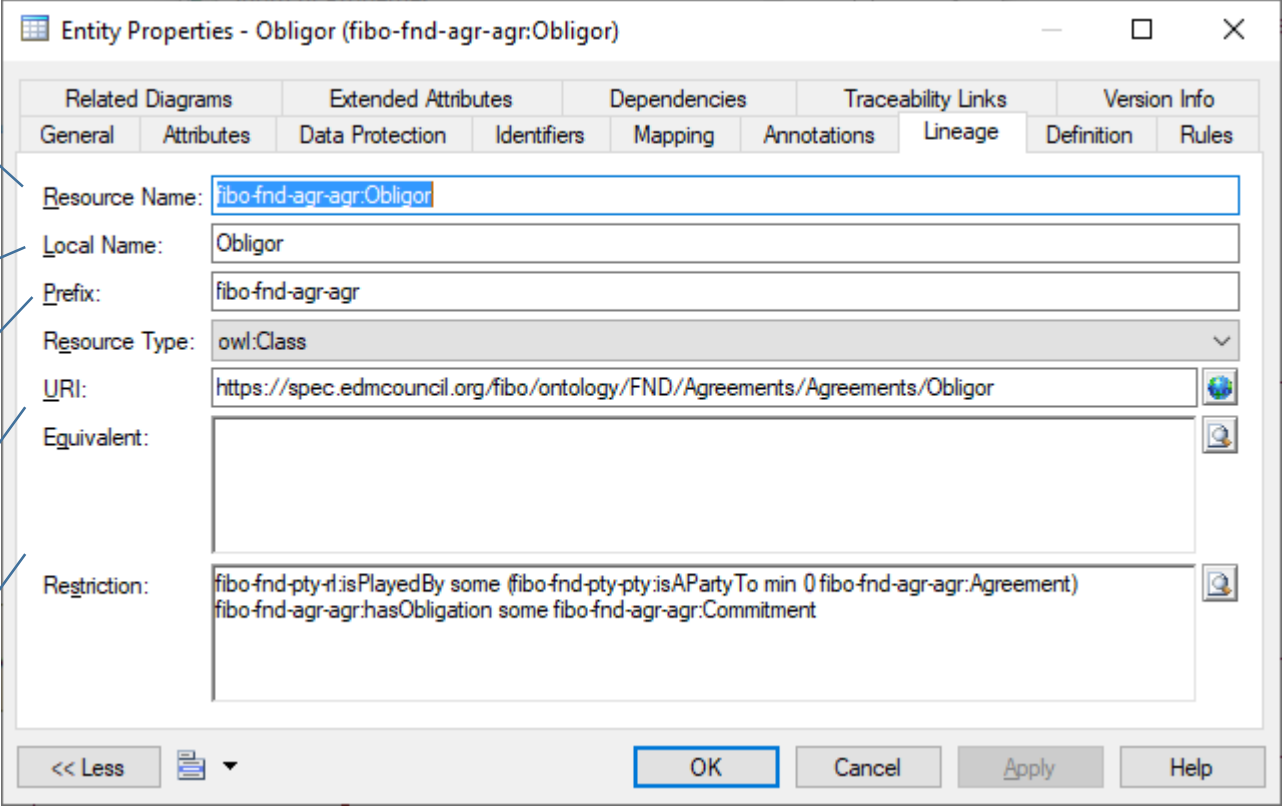
The Resource Name is class *Prefix* and *Localname*. FIB-DM uses the resource name as the entity code, but you can generate your codes in the modeling tool.

The Localname is the rightmost string in the Resource Name and URI.

The Prefix is an abbreviation of the URI defined in the ontology.

The Uniform Resource Identifier of the class is a link to the FIBO source ontology.

Restriction and Equivalent class axioms formulate OWL semantics.



The image shows a screenshot of the 'Entity Properties' dialog box for the class 'Obligor' (fibonacci-fnd-agr-agr:Obligor). The dialog has several tabs: 'General', 'Attributes', 'Data Protection', 'Identifiers', 'Mapping', 'Annotations', 'Lineage', 'Definition', and 'Rules'. The 'Lineage' tab is selected. The 'Resource Name' field is highlighted with a blue box and contains the text 'fibonacci-fnd-agr-agr:Obligor'. The 'Local Name' field contains 'Obligor'. The 'Prefix' field contains 'fibonacci-fnd-agr-agr'. The 'Resource Type' field is set to 'owl:Class'. The 'URI' field contains the URL 'https://spec.edmcouncil.org/fibo/ontology/FND/Agreements/Agreements/Obligor'. The 'Equivalent' field is empty. The 'Restriction' field contains two axioms: 'fibonacci-fnd-pty-rl.isPlayedBy some (fibonacci-fnd-pty-pty.isAPartyTo min 0 fibonacci-fnd-agr-agr:Agreement)' and 'fibonacci-fnd-agr-agr.hasObligation some fibonacci-fnd-agr-agr:Commitment'. The dialog has buttons for '<< Less', 'OK', 'Cancel', 'Apply', and 'Help'.

Related Diagrams	Extended Attributes	Dependencies	Traceability Links	Version Info
General	Attributes	Data Protection	Identifiers	Mapping
Annotations	Lineage	Definition	Rules	

Resource Name: fibonacci-fnd-agr-agr:Obligor

Local Name: Obligor

Prefix: fibonacci-fnd-agr-agr

Resource Type: owl:Class

URI: https://spec.edmcouncil.org/fibo/ontology/FND/Agreements/Agreements/Obligor

Equivalent:

Restriction: fibonacci-fnd-pty-rl.isPlayedBy some (fibonacci-fnd-pty-pty.isAPartyTo min 0 fibonacci-fnd-agr-agr:Agreement)
fibonacci-fnd-agr-agr.hasObligation some fibonacci-fnd-agr-agr:Commitment

<< Less OK Cancel Apply Help



The FIBO resolves conceptual defects



Robert II d'Uzès, 1422

*The Involved Party is dead.
Long live the Autonomous Agent!*



600 years later, the *Involved Party* is still an ultimate supertype in numerous reference models and databases*.

The FIBO breaks up that comingled entity into two fundamental concepts, the *Autonomous Agent* (person, legal entity) and *Thing in Role* (customer, employee, broker).

* A non sequitur is a conclusion or statement that does not logically follow from the previous argument or statement (a joke).



Data Architect

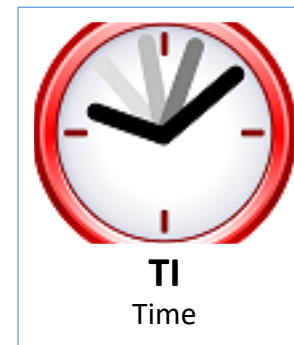
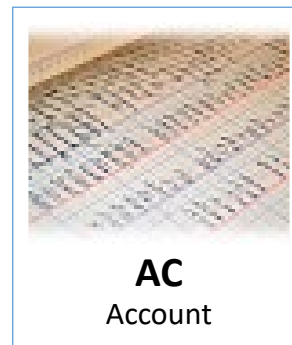
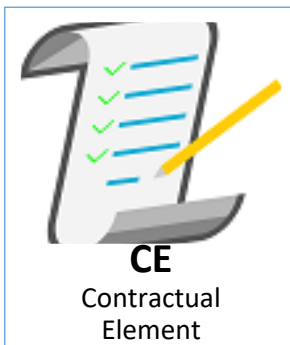
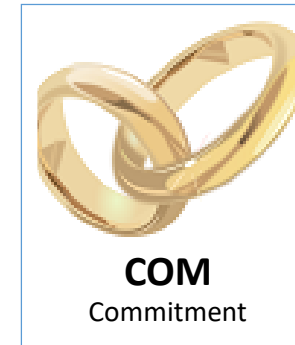
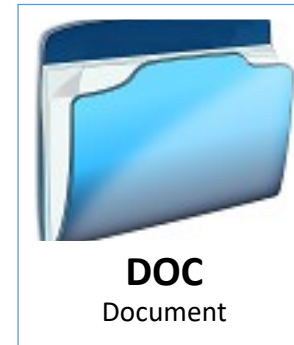
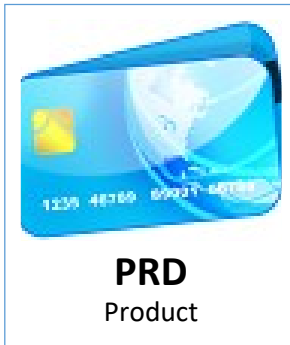
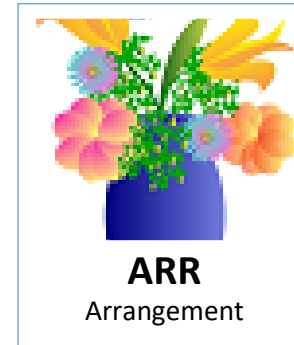
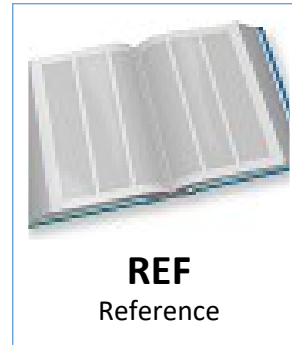
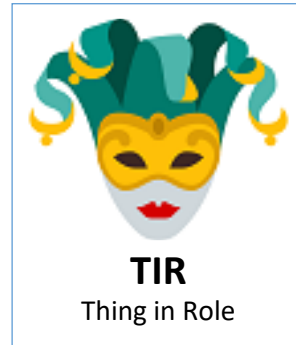


Ontologist

<https://fib-dm.com> © Jayzed Data Models Inc. 2020

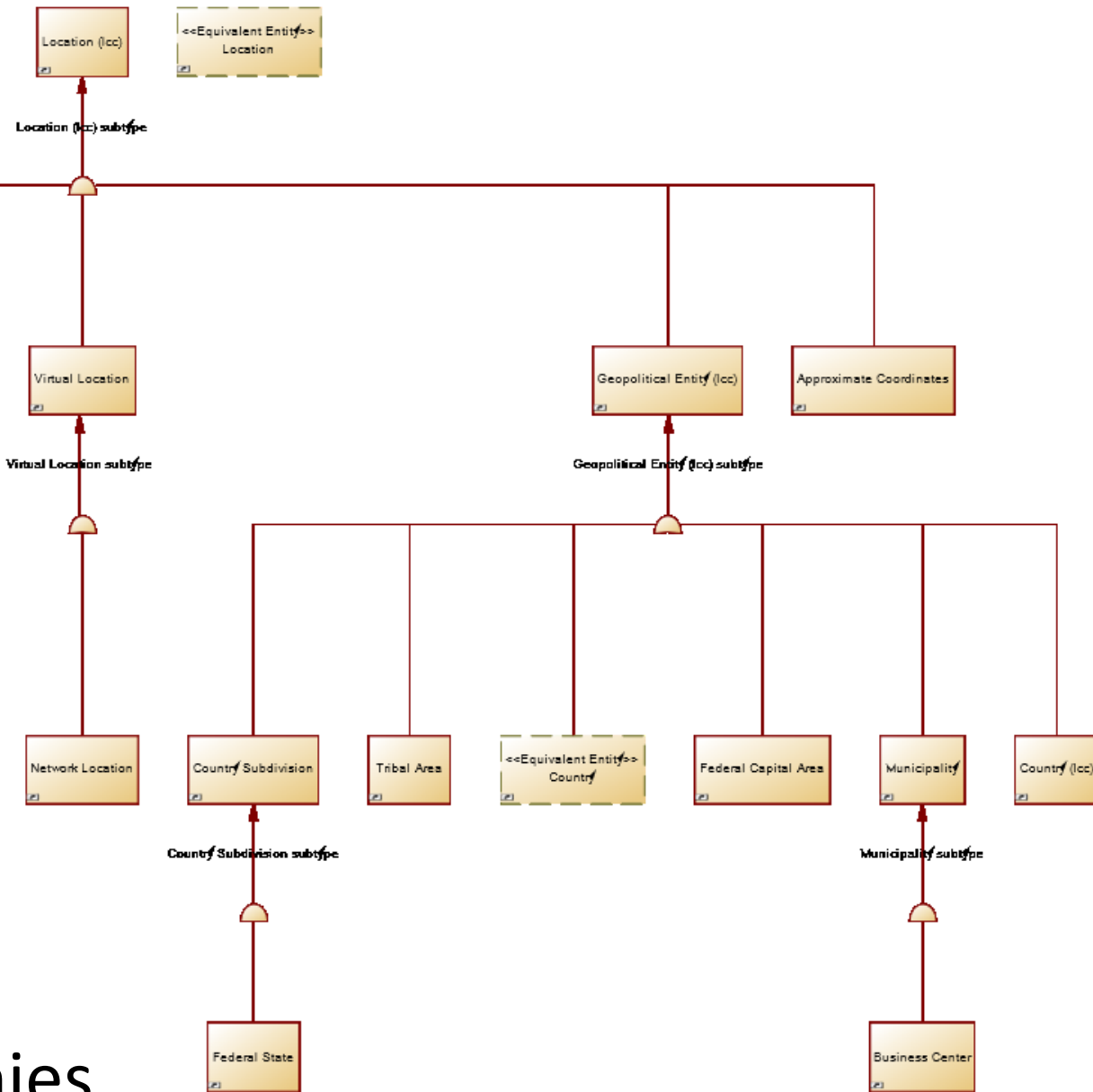
FIB-CM 15 concepts, mnemonic icons, and abbreviations

Enough
to
visualize
design in
user-
friendly
concept
maps



70% of
FIB-DM
entities
are a
subtype
of the
concept
entity

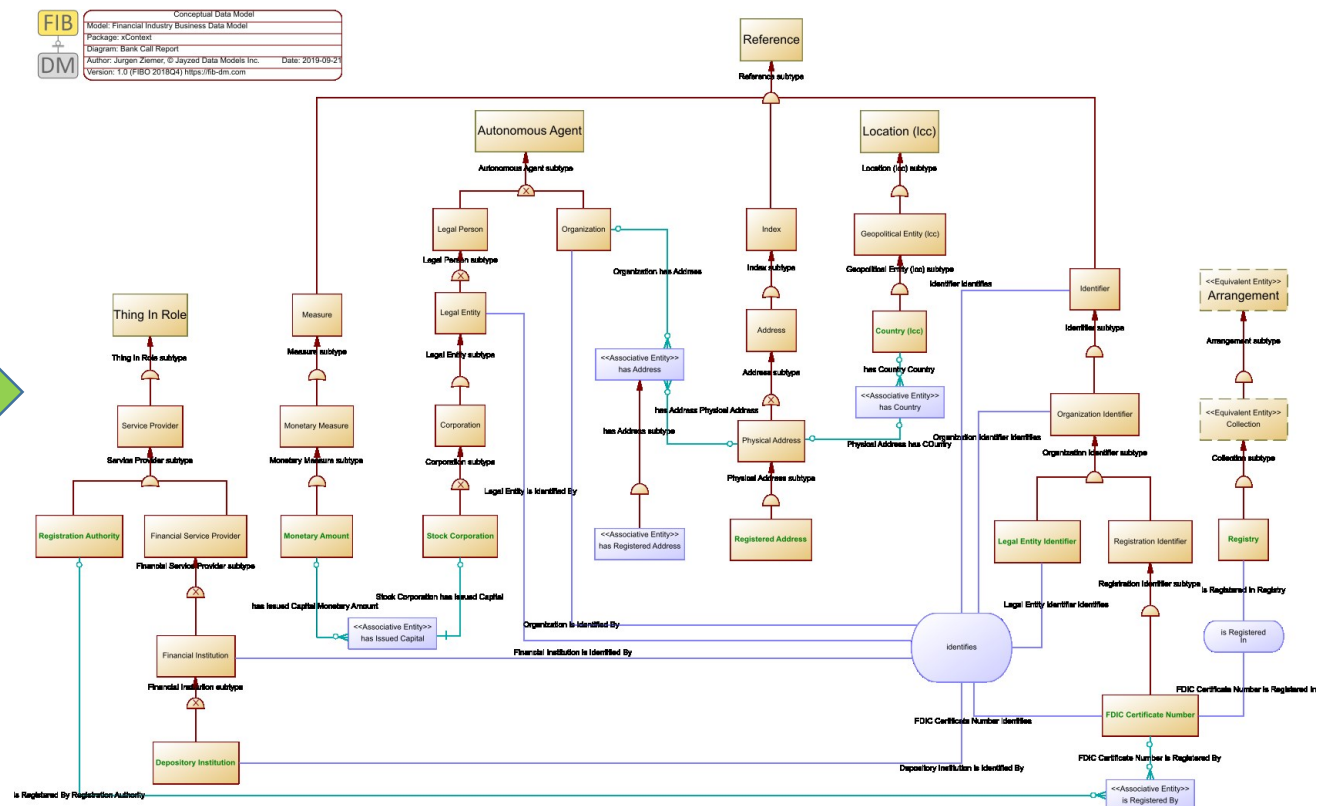
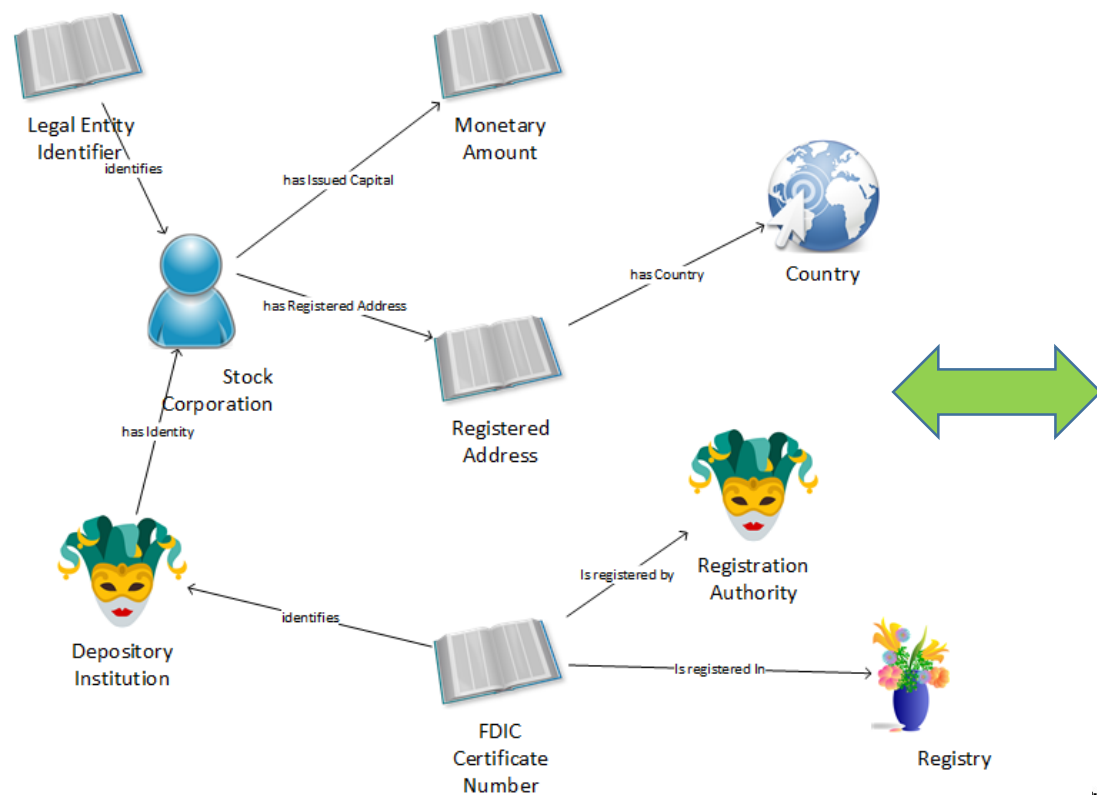




The 15 Concepts have
deep subtype hierarchies.



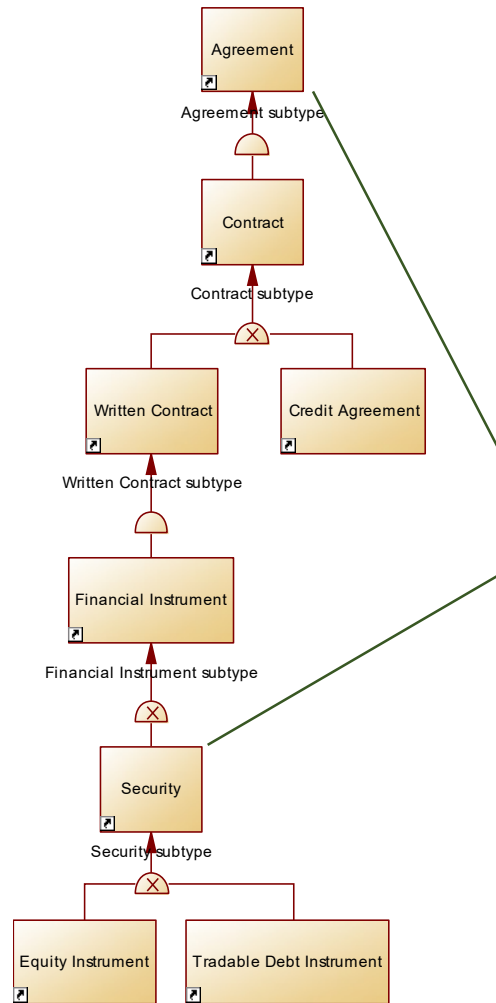
The concept maps, FIB-CM, link to the data model.



<https://fib-dm.com/semantics-for-finance-users/>



DAs, merge in your vendor and inhouse models



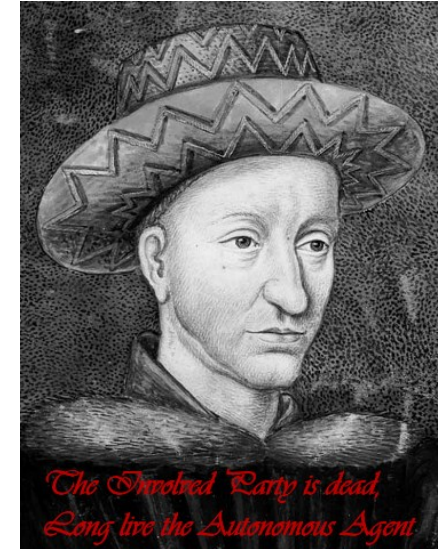
Your vendor model has excellent value. Keep it and harvest the content!

Adhere to the industry-standard 15 concepts and their subtype hierarchies

Adopt the FIBO/FIB-DM names and definitions

1. Identify indirect entity matches, synonyms
2. Identify direct entity matches, beware of homonyms
3. Merge entities that are not already in FIB-DM, identify the appropriate supertype.
4. Merge attributes from your vendor model.

Note that the FIBO Data Model correctly defines Financial Instruments as a subtype of the Contract, an Agreement – **not a Product** as some Vendor model do.



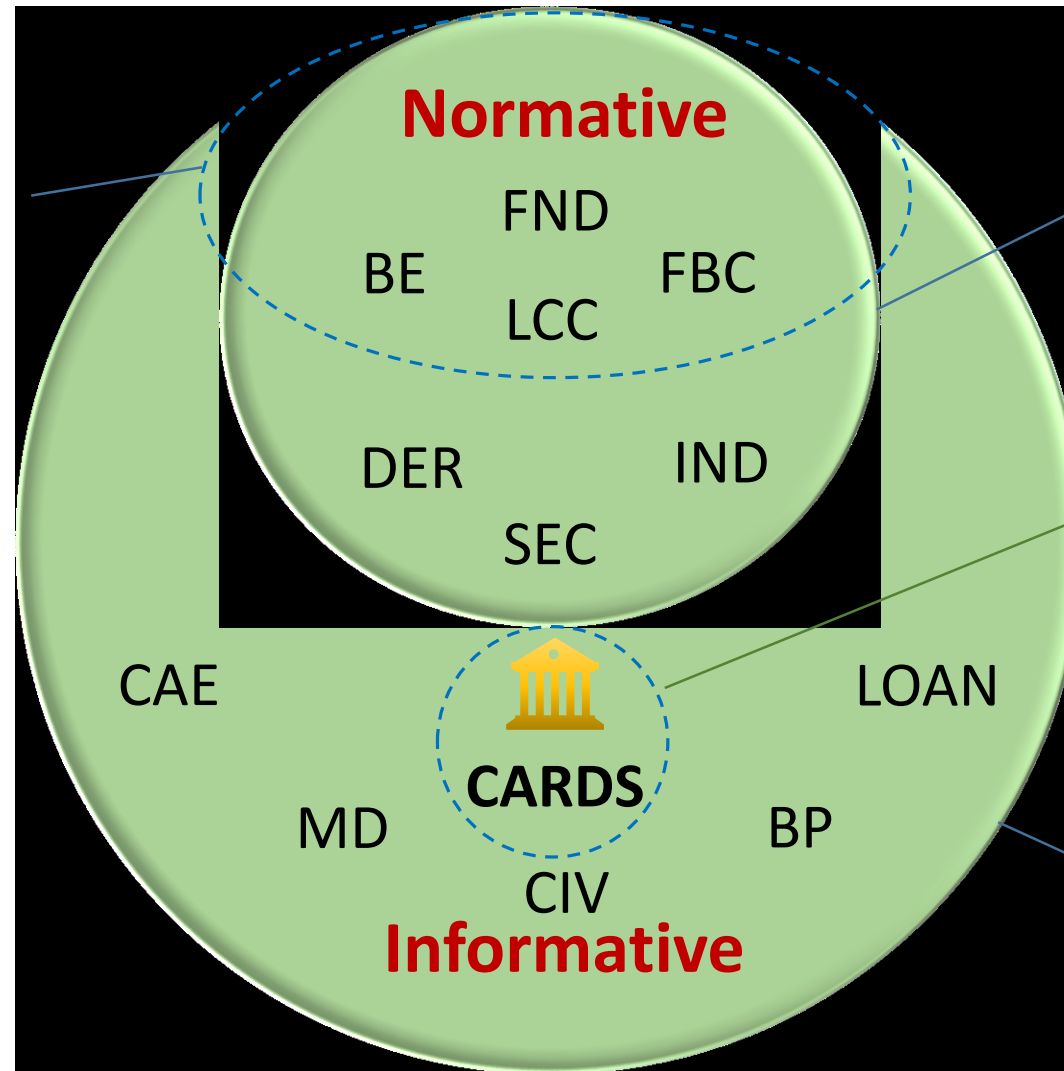
Robert's advice



Two models – Normative and Informative

Open Source
core
FIBO 2018/Q4

- New modules enter FIBO Development
- Informative modules become normative



FIBO/FIB-DM
2020/Q2
Production

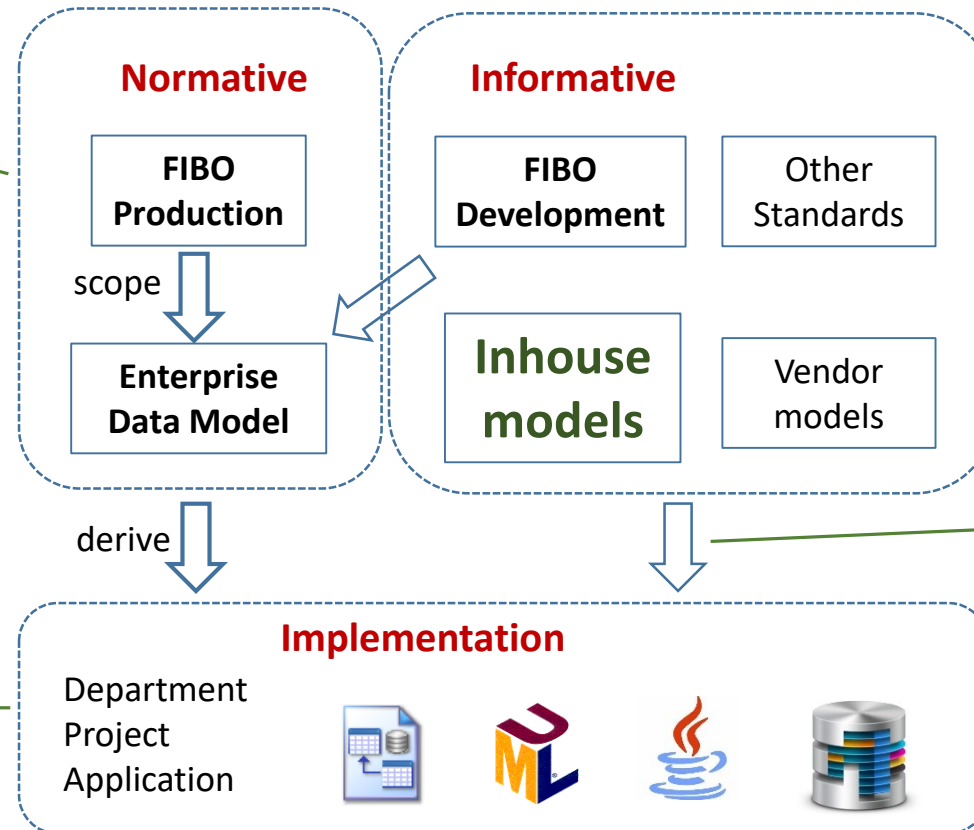
Your FIBO
Extensions

FIBO/FIB-DM
2020/Q2
Development



FIBO, vendor, and in-house models for SEIA

We adhere
to the
industry-
standard



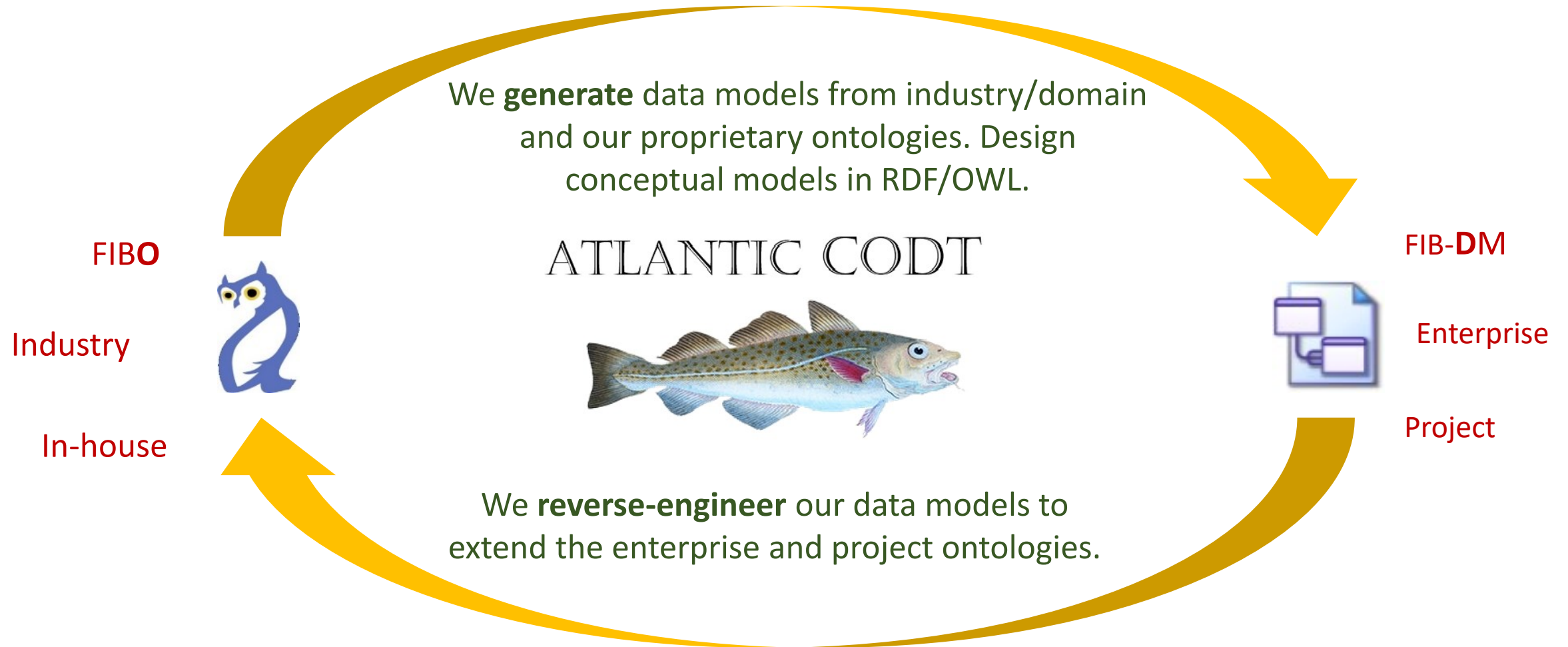
We consult
FIBO
development

Our method
is to derive

Our goal is
leverage



FIB-DM + CODT is the strategic solution

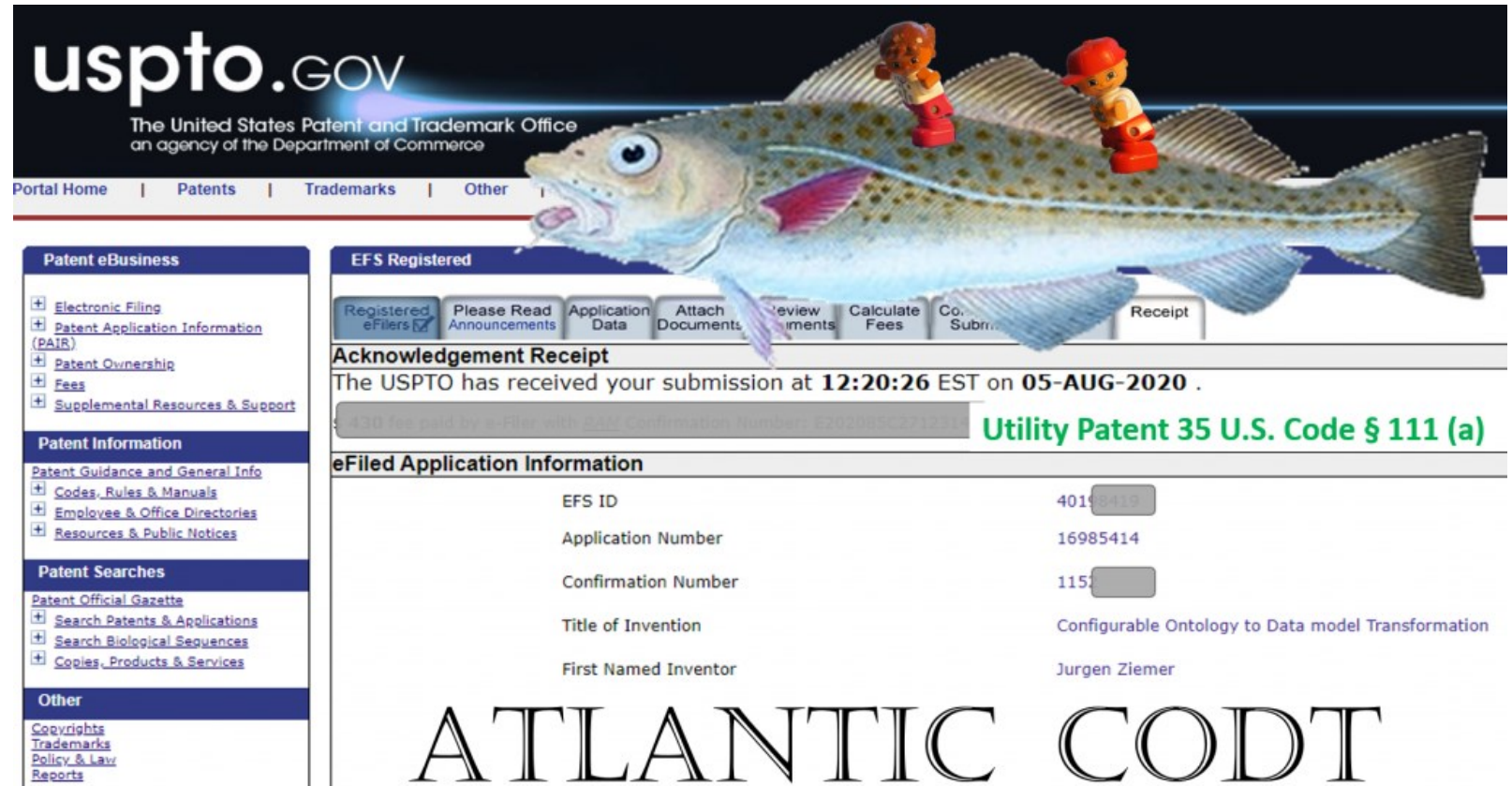


US Patent & Trademark Office acknowledgment

With 23 drawings, 19 tables, and 35 pages of specification, the non-provisional patent application fully discloses the invention.

Twenty claims comprehensively cover the method, system, non-transitory storage medium, and all embodiments.

Once granted, the patent protects CODT licensees and generated models, including FIB-DM.



The screenshot shows the USPTO.gov website with a large banner featuring a cartoon fish with two small figures on its back. The main content area displays an "Acknowledgement Receipt" for a utility patent application. The receipt includes the following information:

- Patent eBusiness** sidebar with links for Electronic Filing, Patent Application Information (PAIR), Patent Ownership, Fees, and Supplemental Resources & Support.
- Patent Information** sidebar with links for Patent Guidance and General Info, Codes, Rules & Manuals, Employees & Office Directories, and Resources & Public Notices.
- Patent Searches** sidebar with links for Patent Official Gazette, Search Patents & Applications, Search Biological Sequences, and Copies, Products & Services.
- Other** sidebar with links for Copyrights, Trademarks, Policy & Law, and Reports.
- EFS Registered** section with buttons for Registered eFilers, Please Read Announcements, Application Data, Attach Documents, Review Payments, Calculate Fees, Co. Submissions, and Receipt.
- Acknowledgement Receipt** section stating: "The USPTO has received your submission at 12:20:26 EST on 05-AUG-2020." and "Utility Patent 35 U.S. Code § 111 (a)".
- eFiled Application Information** table:

Field	Value
EFS ID	401
Application Number	16985414
Confirmation Number	115
Title of Invention	Configurable Ontology to Data model Transformation
First Named Inventor	Jurgen Ziemer

Below the table, the words "ATLANTIC" and "CODT" are displayed in a large, stylized font.

<https://fib-dm.com/patent/>



Finance key point

FIB-DM General Public 3.0 vs. Customer License

Topic	Detail	Your current General Public License 3.0	Your upgrade Jayzed Customer License
FIBO Release		2018/Q4	2020/Q2
Domain		Public	Private
Distribution	Original FIB-DM	encouraged	prohibited
	Your FIB-DM derived works	Open Source	Private, not applicable
Number of Entities		1029	1,968 (normative) 4,563 (informative)
Normative	Foundation	✓	✓
	Business Entities	✓	✓
	Finance, Business & Commerce	✓	✓
	Securities	X	✓
	Derivatives	X	✓
	Indexes & Indicators	X	✓
Informative	LOANS	X	✓
	Funds	X	✓
	Corporate Actions	X	✓
	Market Data	X	✓
	Business Processes	X	✓
Resources	PowerPoints	X	✓
	Videos	X	✓
	Whitepapers	X	✓

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DAMA, Consultants, vendors - publish Open Source!

Showcase your expertise!

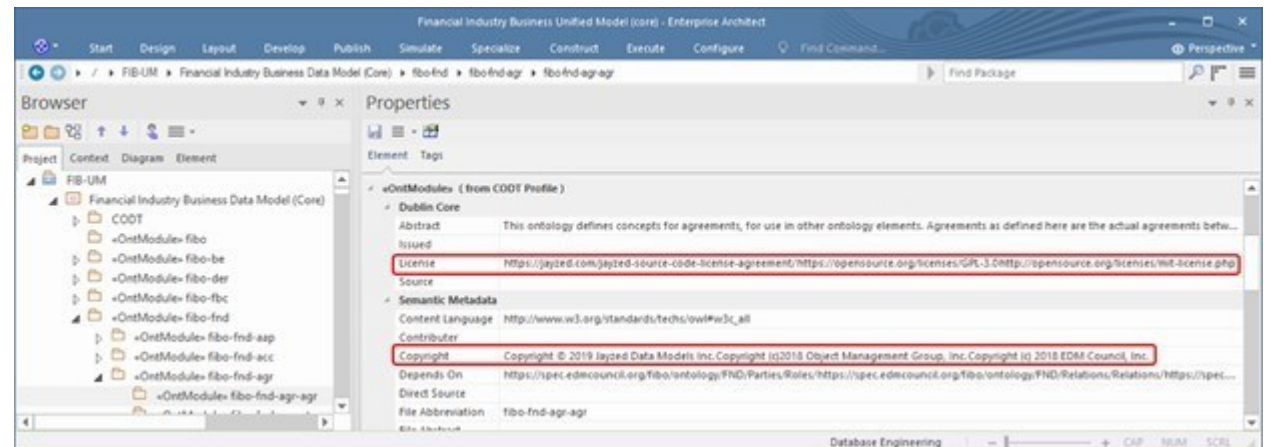
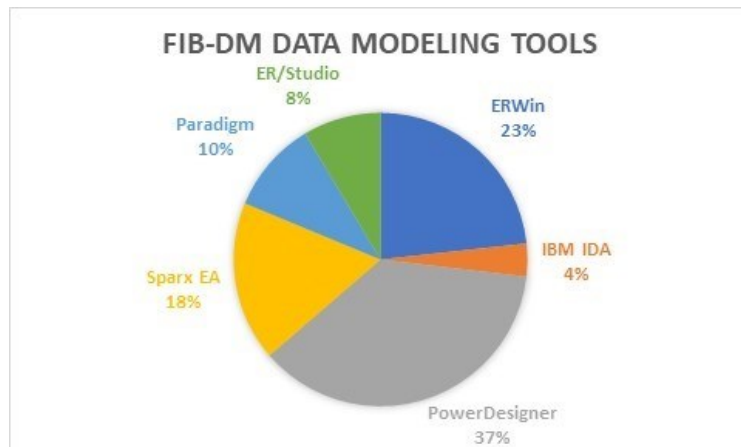


Publish a migration tutorial.

Share your extension and diagrams with hundreds of users.

Publish your ERWin, Sparx EA, Paradigm, or E/R Studio FIBO Data Model!

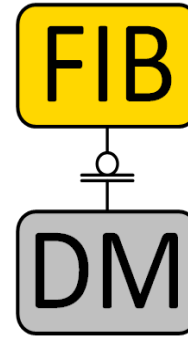
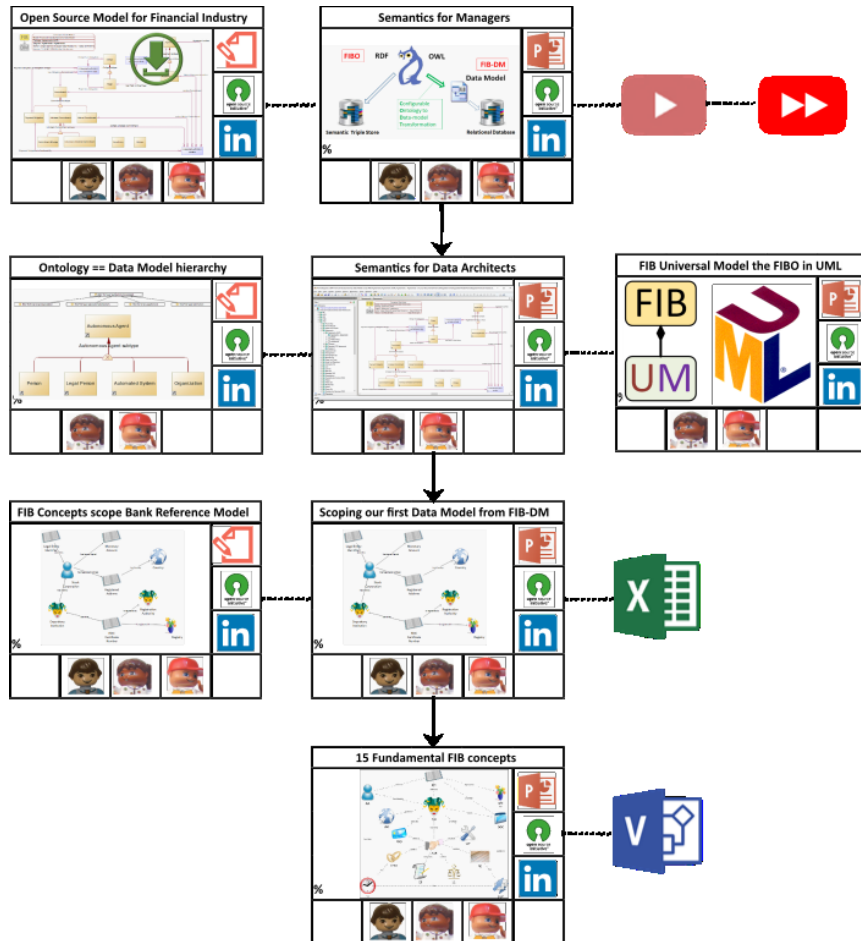
Under the [General Public License](#), all FIB-DM Core-derived works are Open Source already – you don't have to ask for my permission to share them. Just make sure to **retain (or add, if lost in the import) the Jayzed, EDMC, and OMG copyright and license properties** on all packages (subject areas).



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Resources for further reading and watching

Education path, visual guide to FIB-DM



The FIB-DM website: <https://fib-dm.com>

- PowerPoints for viewing and download
- Deep-dive articles
- Scalable SVG diagrams of packages and the complete subtype hierarchies.

Follow the FIB-DM LinkedIn page for news, updates, and to read and share comments.
<https://www.linkedin.com/showcase/fib-dm/>

Watch FIB-DM Education videos on YouTube.
<https://www.youtube.com/c/fibdm>

Ask your questions or schedule a meeting.
jziemer@jayzed.com

Thank you!



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