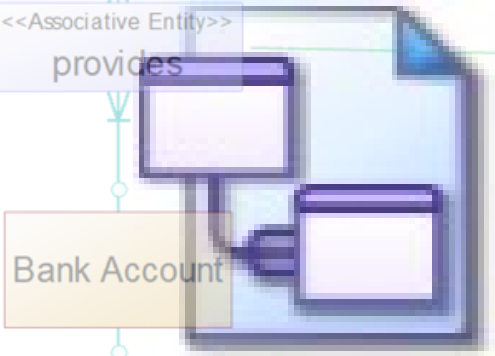
Data Models for Ontologists

The **C**onfigurable **O**ntology to **D**ata model **T**ransformation, CODT in Reverse mode.



Transforming Entity-Relationship models into RDF/OWL to accelerate **Enterprise Ontology** development for **Knowledge Graph** and other use cases.

Fast forward

FIBO and FIB-DM are the Industry Standard

Open Knowledge Graph

The Financial Industry Business Ontology is the blueprint for Enterprise Ontologies and the Knowledge Graph.

FIB

DM

Twelve hundred users downloaded the ontology-derived Financial Industry Business Data Model.

ATLANTIC CODT

The patent-pending technology that created the FIBO Data Model is available for licensing.

Finance key point

Financial Institution's Semantic Center of Excellence tasked to build enterprise and operational ontologies.

Ontologist with FIBO expertise, responsible for designing the enterprise ontology.

Data Architect experienced in Enterprise Reference models. You know FIB-DM, existing databases, and models.

Finance / **Business** / **Management**. You want to accelerate Semantic Enterprise Information Architecture.

Finance key point

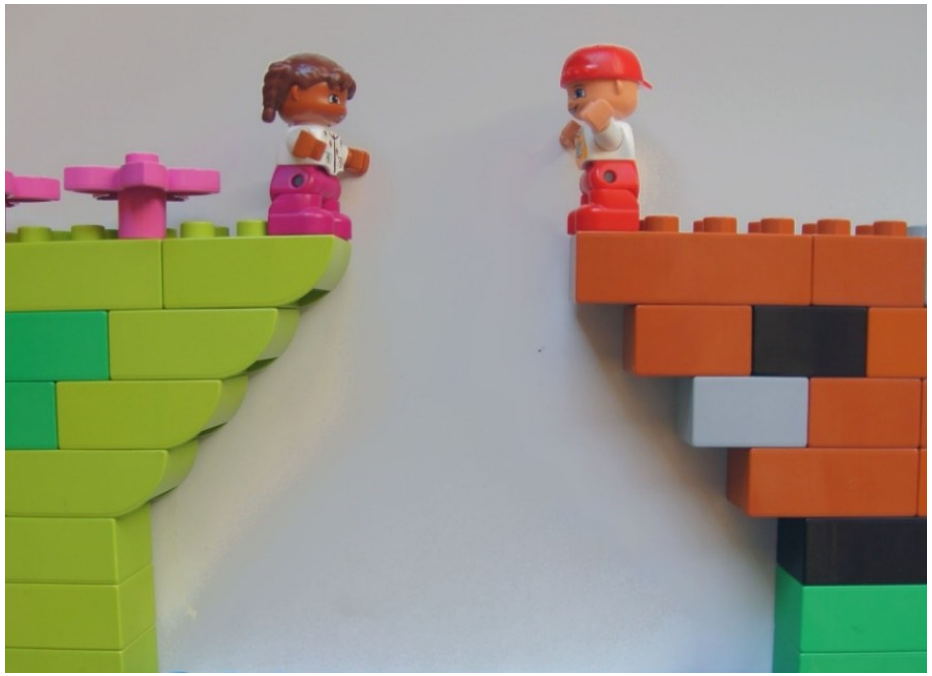
The chasm between semantic and conventional data management impedes FIBO customization.

The ontologist has an extensive reference domain ontology.

The Data Architect has models of existing databases

Maybe even an Enterprise Data Model based on FIB-DM.

The organization has metadata for new OKG modules, classes, and properties.



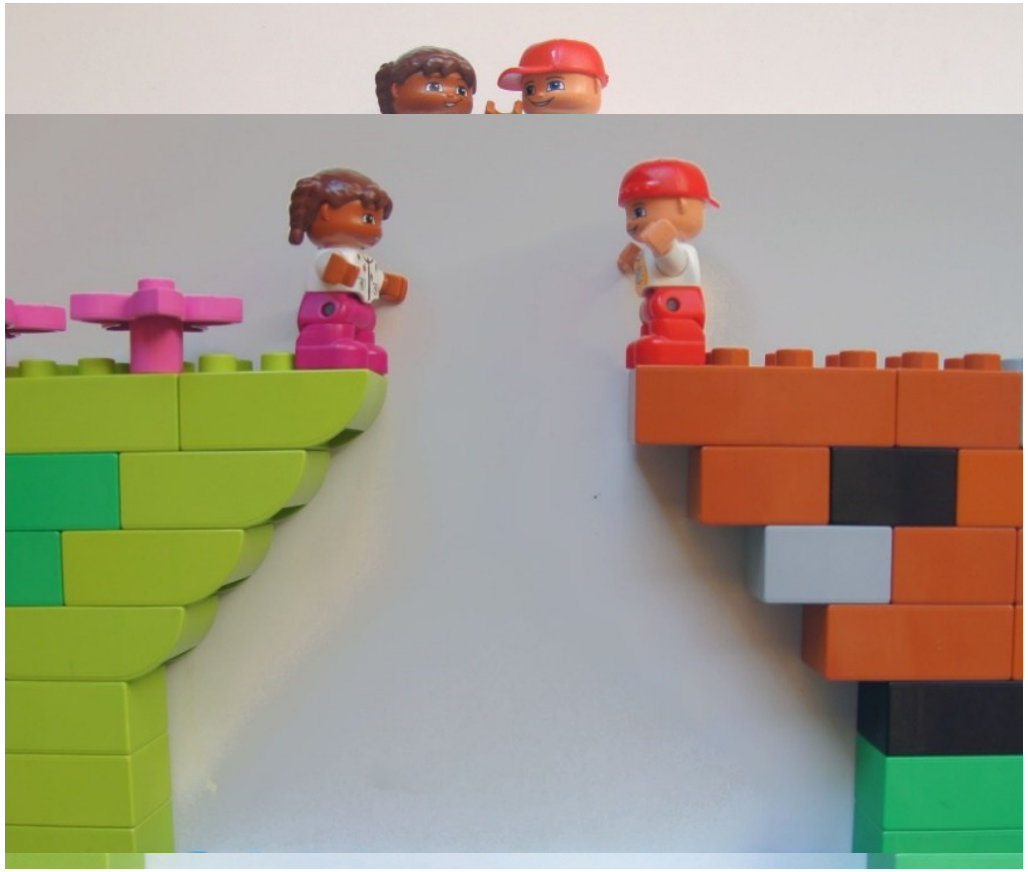
The Financial Institution must still customize the FIBO.

The ontologist cannot leverage conventional Information assets in data modeling tools.

The ontologist must still manually type-in hundreds of classes, copy and paste documentation.

Finance key point

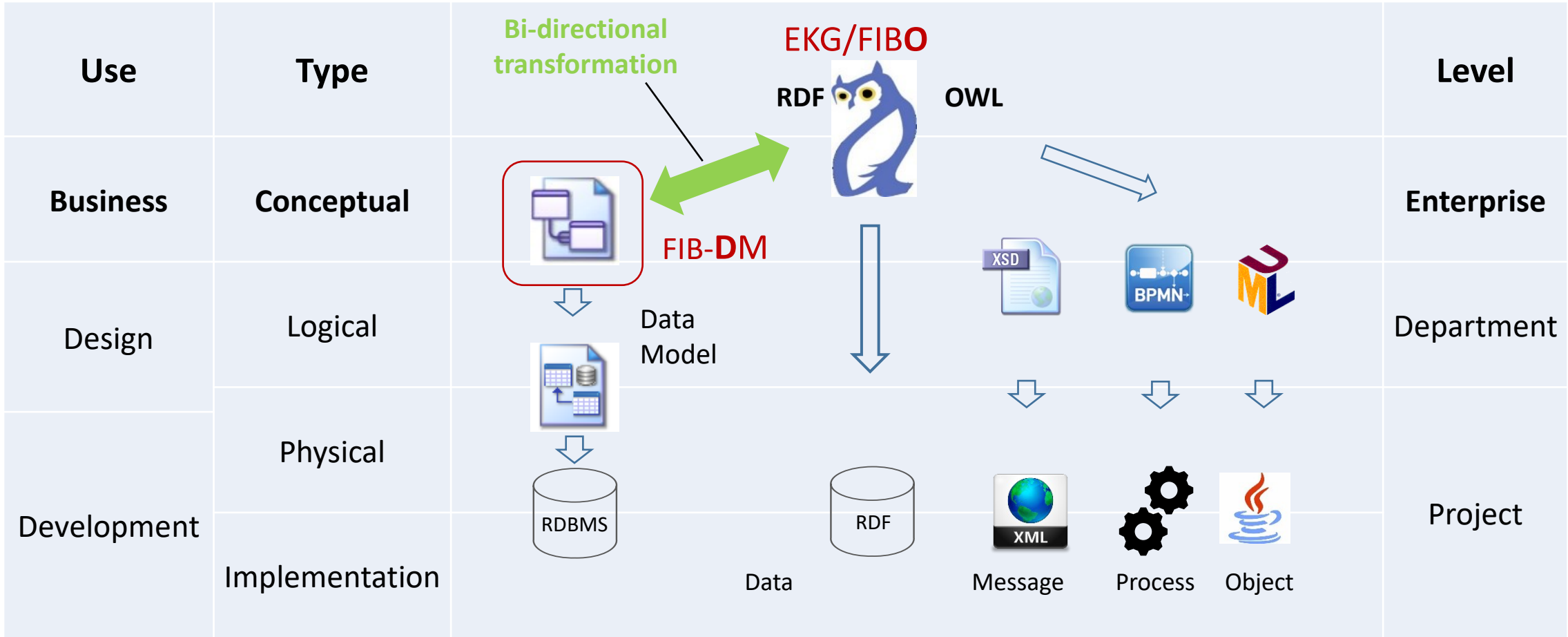
CODT in Reverse is the bridge across the chasm.



Finance key point

The Vision:

Semantic Enterprise Information Architecture (SEIA)



Finance key point

Bi-directional model transformation enables SEIA

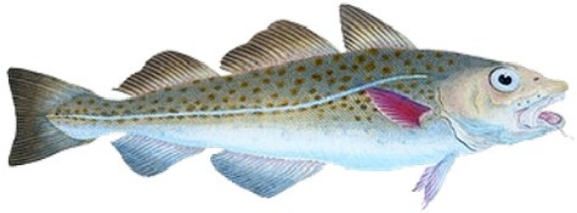
We **generate** data models from industry/domain and our proprietary ontologies. Design conceptual models in RDF/OWL.

FIB**O**

EKG

Operational

ATLANTIC CODT



FIB-**D**M

Enterprise

Project

We **reverse-engineer** our data models to extend the enterprise and project ontologies.

Finance key point

Path for midsize banks

You are here

2020, adopt the Industry Standard, FIBO data and concept model

2021, train data architects in OWL.
Customize FIBO to become your Enterprise Ontology / Knowledge Graph

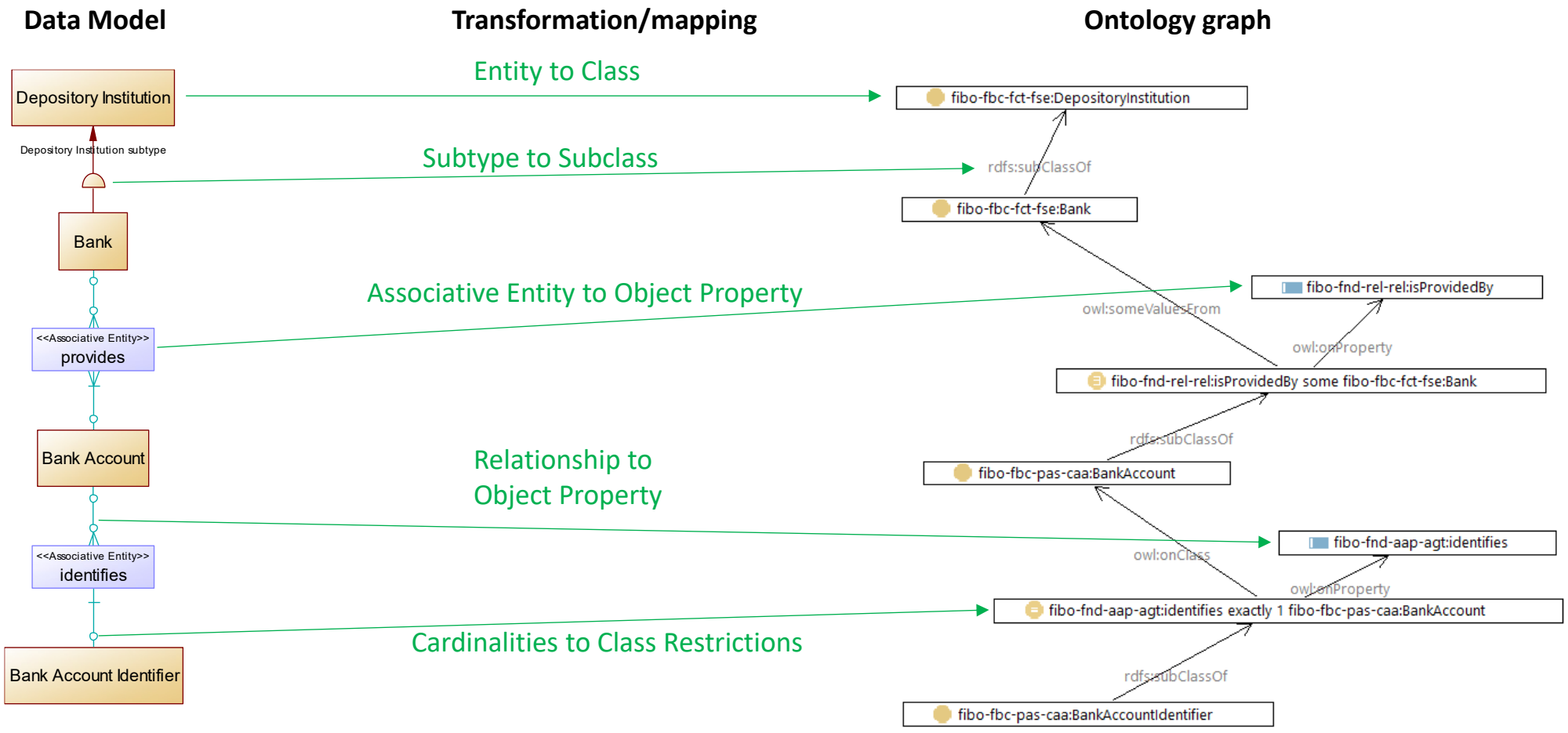
2022, Semantic Enterprise Information Architecture

Easy to learn a new language, OWL and tooling; if you already know the content and design.

Easy to build FIBO ontologies if you have FIB-DM data models.

Finance key point

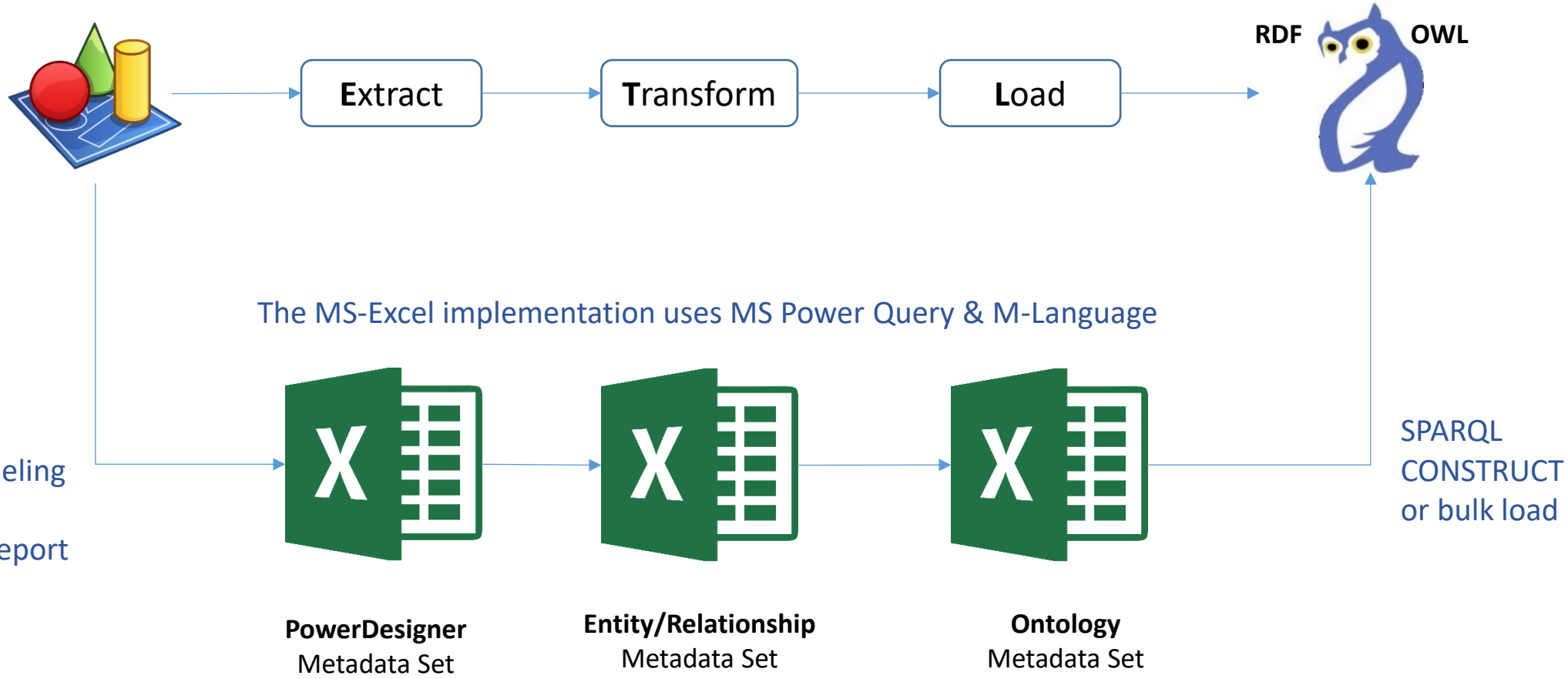
What: Data Model to Ontology mapping




Data Architect

Ontologist

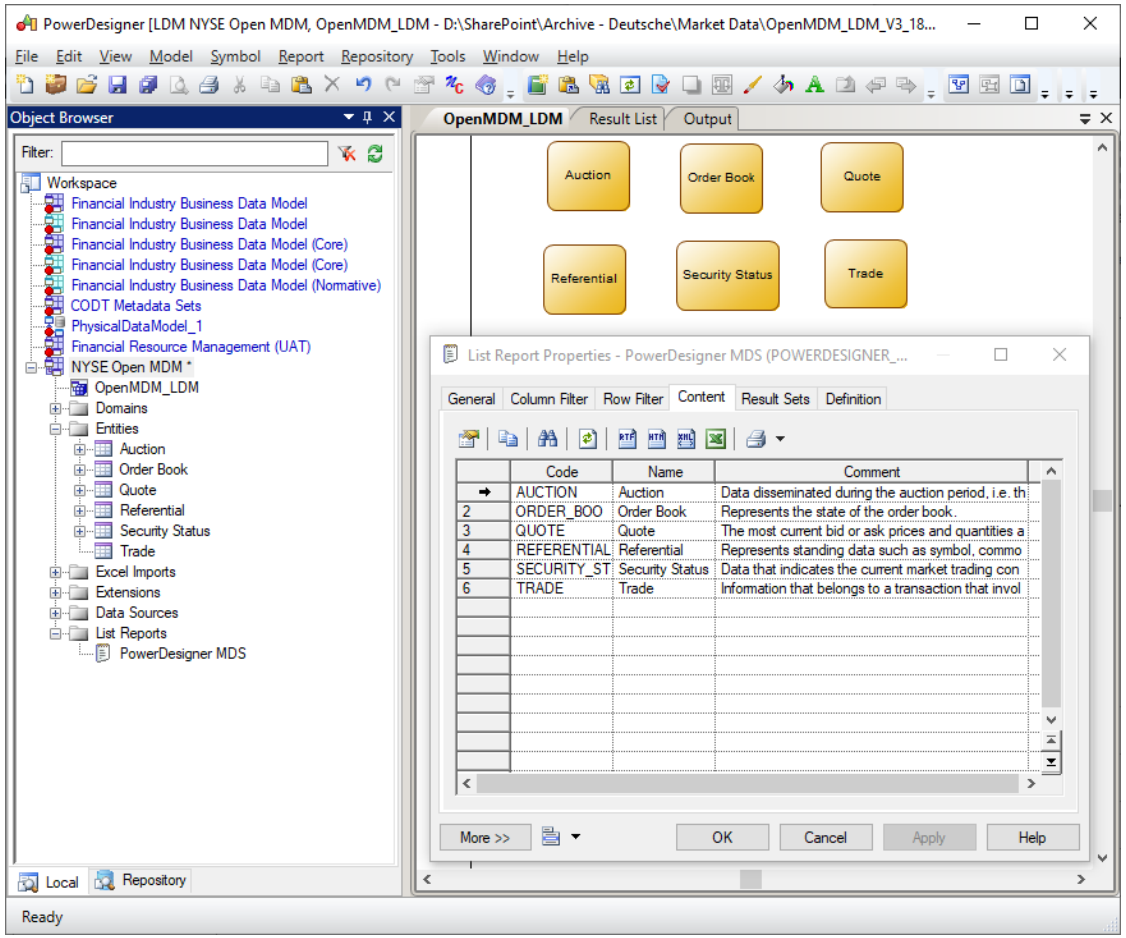
How: Bi-directional CODT Metadata Sets



Data Architect

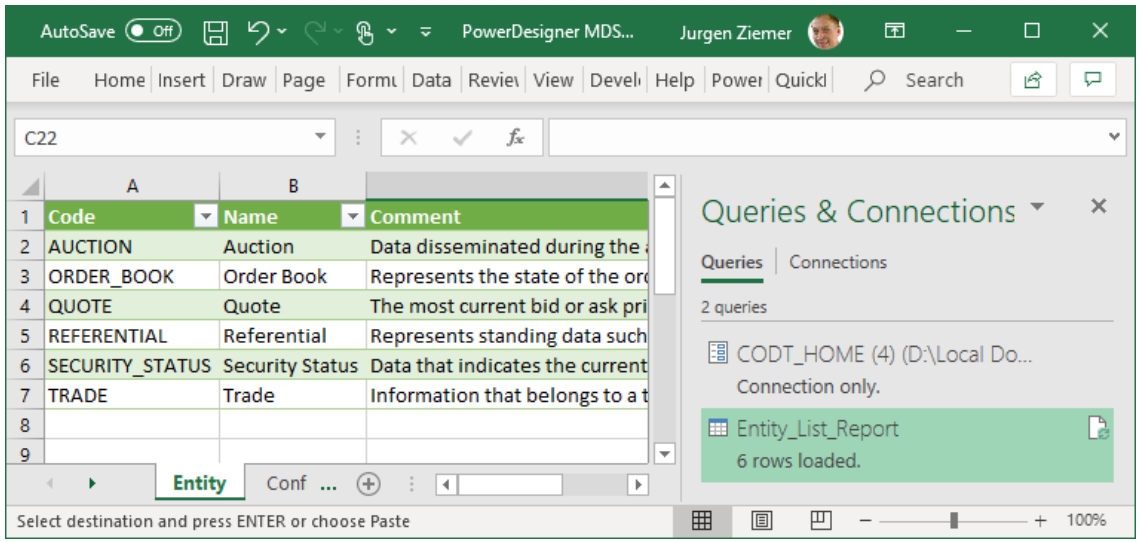
Ontologist

Reverse example: Extract from PowerDesigner



Our example is the Logical Data Model created from the New York Stock Exchange's OpenMAMA message API.

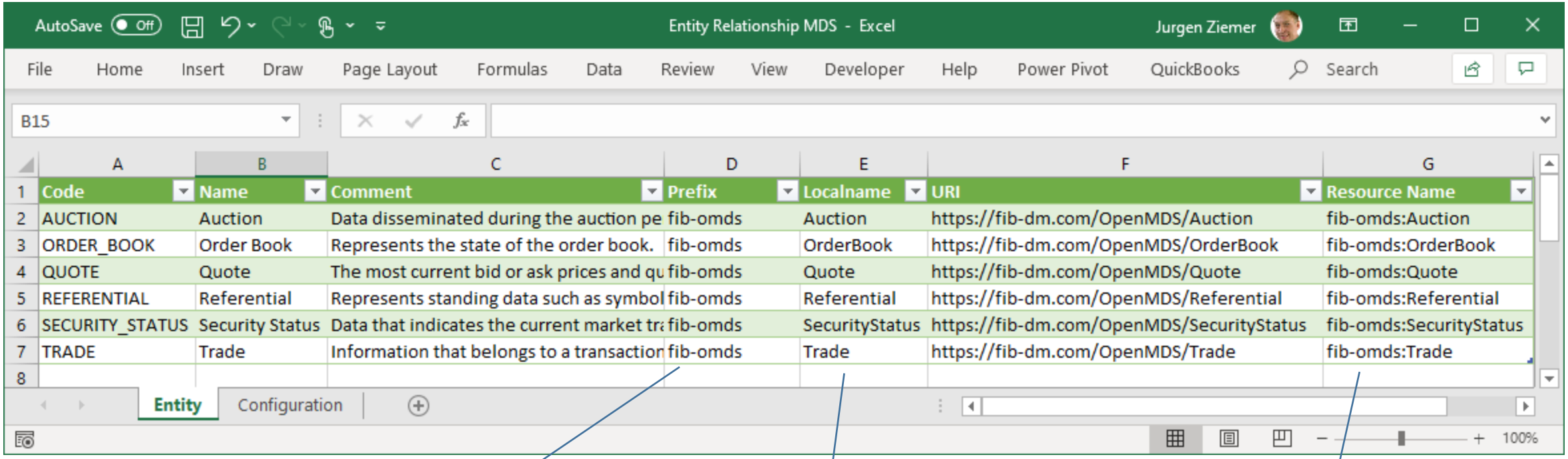
The PowerDesigner Entity list report has Code, Name, and Comment. The PowerDesigner MDS sources the list report



Data Architect

Transform in the Entity-Relationship MDS

The Metadata Set populates from the PowerDesigner Entity MDS



	A	B	C	D	E	F	G
1	Code	Name	Comment	Prefix	Localname	URI	Resource Name
2	AUCTION	Auction	Data disseminated during the auction pe	fib-omds	Auction	https://fib-dm.com/OpenMDS/Auction	fib-omds:Auction
3	ORDER_BOOK	Order Book	Represents the state of the order book.	fib-omds	OrderBook	https://fib-dm.com/OpenMDS/OrderBook	fib-omds:OrderBook
4	QUOTE	Quote	The most current bid or ask prices and qu	fib-omds	Quote	https://fib-dm.com/OpenMDS/Quote	fib-omds:Quote
5	REFERENTIAL	Referential	Represents standing data such as symbol	fib-omds	Referential	https://fib-dm.com/OpenMDS/Referential	fib-omds:Referential
6	SECURITY_STATUS	Security Status	Data that indicates the current market tra	fib-omds	SecurityStatus	https://fib-dm.com/OpenMDS/SecurityStatus	fib-omds:SecurityStatus
7	TRADE	Trade	Information that belongs to a transaction	fib-omds	Trade	https://fib-dm.com/OpenMDS/Trade	fib-omds:Trade
8							

Prefix and URI are configuration settings matching the designated prefix and namespace of the ontology

The Entity Name transforms to Localname with a Camel Code string function

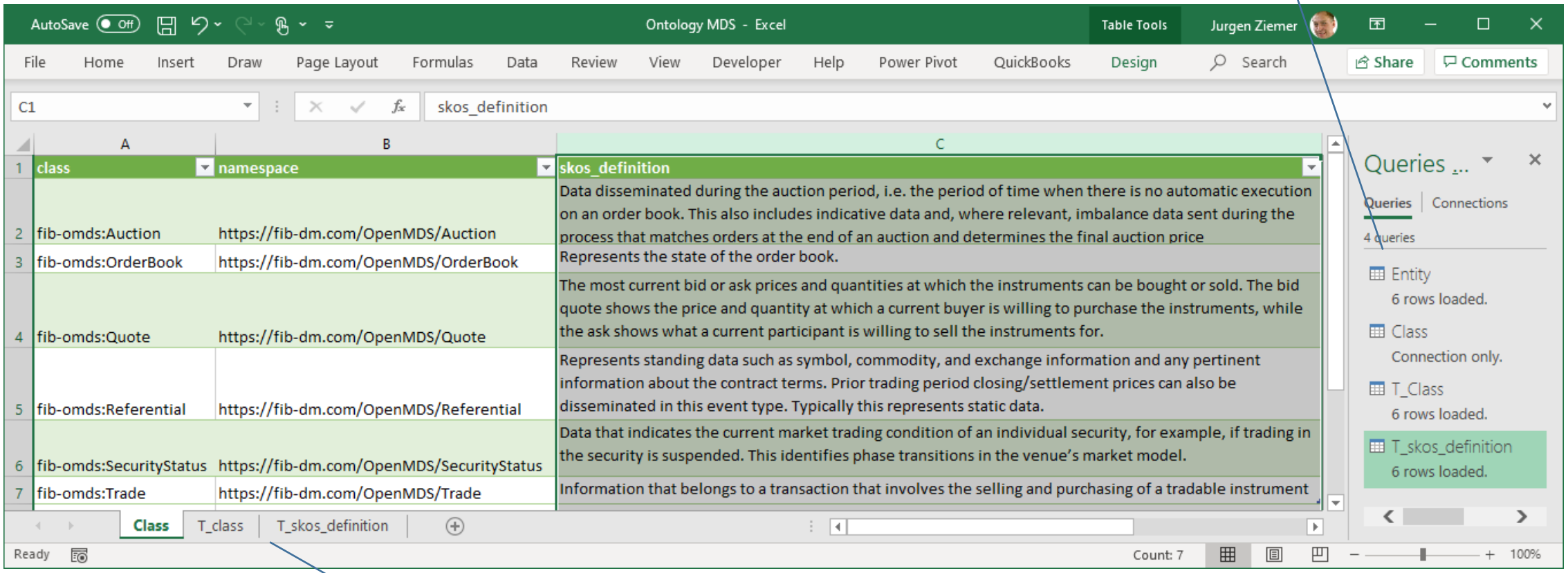
The Resource Name is a concatenation of Prefix, delimiter, and Localname

Data Architect

Ontologist

Load into ontology

A query populates the Class metadata set from the Entity MDS



	A	B	C
1	class	namespace	skos_definition
2	fib-omds:Auction	https://fib-dm.com/OpenMDS/Auction	Data disseminated during the auction period, i.e. the period of time when there is no automatic execution on an order book. This also includes indicative data and, where relevant, imbalance data sent during the process that matches orders at the end of an auction and determines the final auction price
3	fib-omds:OrderBook	https://fib-dm.com/OpenMDS/OrderBook	Represents the state of the order book.
4	fib-omds:Quote	https://fib-dm.com/OpenMDS/Quote	The most current bid or ask prices and quantities at which the instruments can be bought or sold. The bid quote shows the price and quantity at which a current buyer is willing to purchase the instruments, while the ask shows what a current participant is willing to sell the instruments for.
5	fib-omds:Referential	https://fib-dm.com/OpenMDS/Referential	Represents standing data such as symbol, commodity, and exchange information and any pertinent information about the contract terms. Prior trading period closing/settlement prices can also be disseminated in this event type. Typically this represents static data.
6	fib-omds:SecurityStatus	https://fib-dm.com/OpenMDS/SecurityStatus	Data that indicates the current market trading condition of an individual security, for example, if trading in the security is suspended. This identifies phase transitions in the venue's market model.
7	fib-omds:Trade	https://fib-dm.com/OpenMDS/Trade	Information that belongs to a transaction that involves the selling and purchasing of a tradable instrument

Triple, "T_" metadata sets break down the class record into subject, predicate, and object.

Ontologist

The triples match the SPARQL SELECT joins

subject	predicate	object
fib-omds:Auction	rdf:type	owl:Class
fib-omds:OrderBook	rdf:type	owl:Class
fib-omds:Quote	rdf:type	owl:Class
fib-omds:Referential	rdf:type	owl:Class
fib-omds:SecurityStatus	rdf:type	owl:Class
fib-omds:Trade	rdf:type	owl:Class

```
# Owl Classes.rq
SELECT ?class ?qname ?namespace
?skos_definition
WHERE {
  ?class a owl:Class .

OPTIONAL {
  ?class skos:definition ?skos_definition}

}
```

subject	predicate	object
fib-omds:Auction	skos:definition	Data disseminated during the auction period, i.e. the period of time when there is no automatic execution on an order book. This also includes indicative data and, where relevant, imbalance data sent during the process that matches orders at the end of an auction and determines the final auction price
fib-omds:OrderBook	skos:definition	Represents the state of the order book.
fib-omds:Quote	skos:definition	The most current bid or ask prices and quantities at which the instruments can be bought or sold. The bid quote shows the price and quantity at which a current buyer is willing to purchase the instruments, while the ask shows what a current participant is willing to sell the instruments for.
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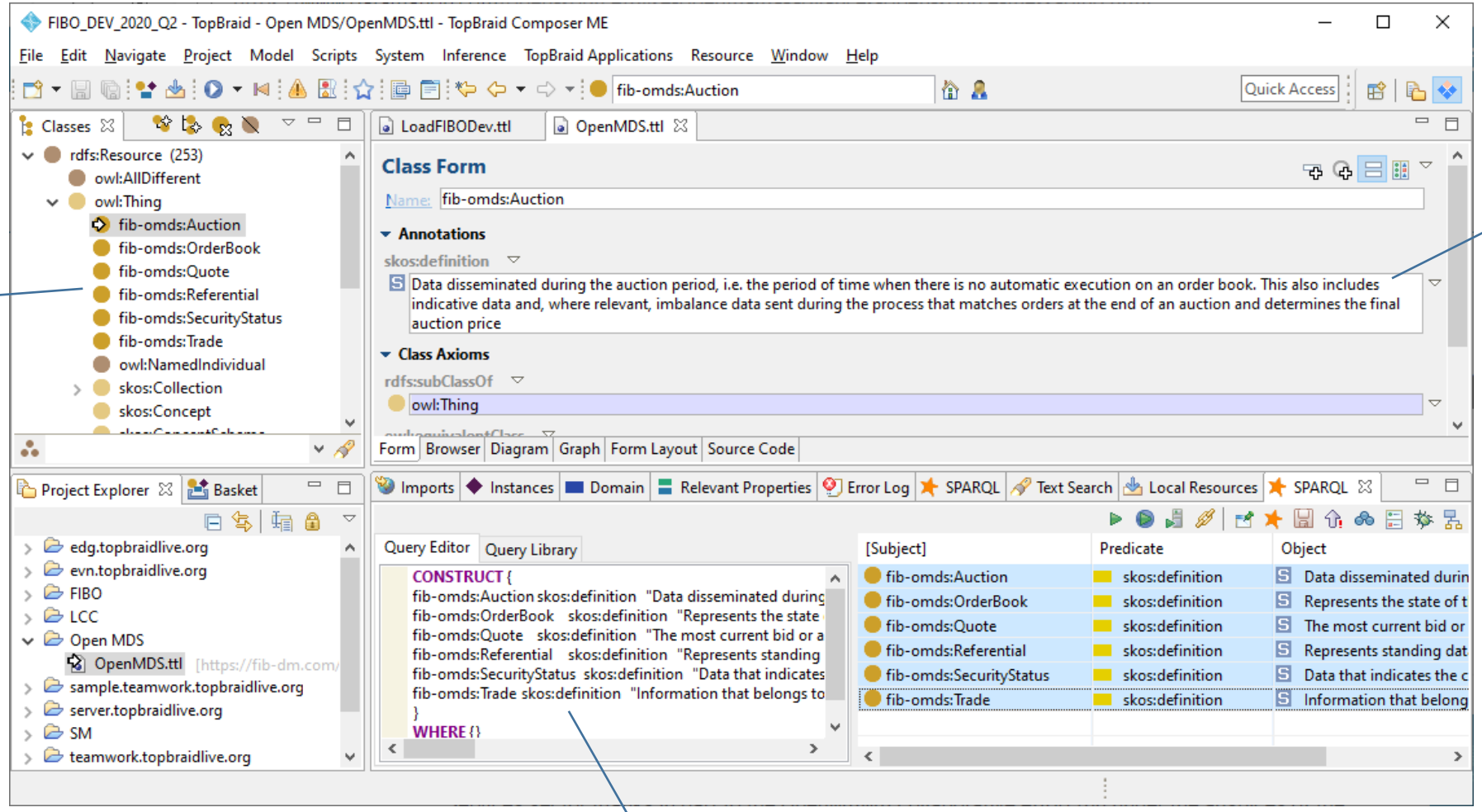
fib-omds:Trade	skos:definition	Information that belongs to a transaction that involves the selling and purchasing of a tradable instrument

Ontologist

Assert the triple in the Ontology Platform

Loaded Classes



Definitions

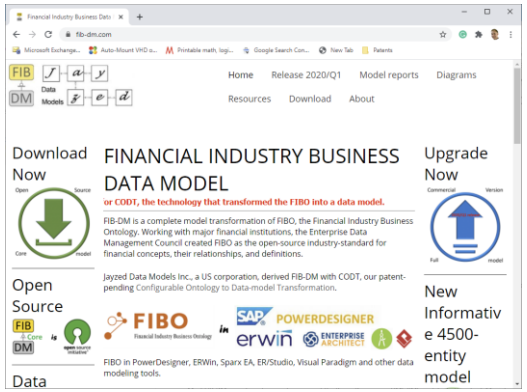
SPARQL CONSTRUCT

Ontologist

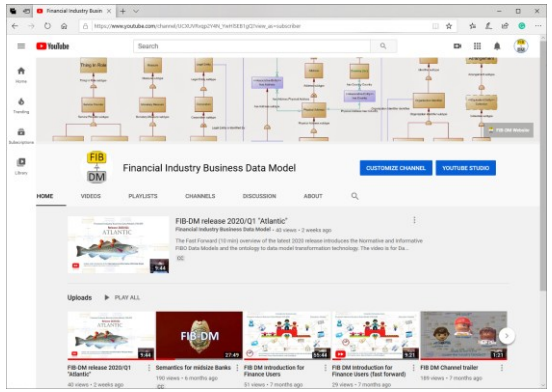
Next step: Discuss a CODT POC

Send an email to jziemer@jayzed.com, “CODT POC,” to have an overview and discussion with your Q&A.

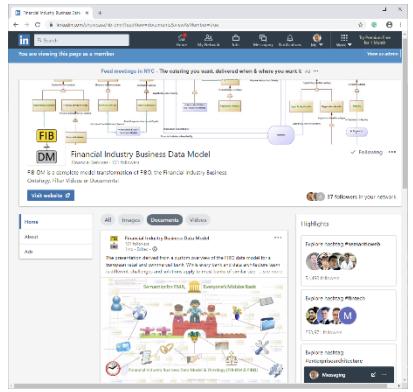
Find further resources on the FIB-DM website, the YouTube Education Channel, and follow the LinkedIn showcase for news, updates, and discussion.



https://fib-dm.com/



https://www.youtube.com/c/fibdm



https://www.linkedin.com/showcase/fib-dm/

Finance key point