

# EDM COUNCIL WEBINAR SERIES

## OPEN KNOWLEDGE / OPEN FIBO

MARCH 31, 2020

11AM EST / 4PM GMT



John Bottega  
President  
EDM Council

# The Importance of Understanding Your Data



## Hoping you are safe and healthy

It is during times like these that we realize **how important data in everything we do!** Combating this virus will depend upon accurate and timely data that will ultimately help medical professionals stem this crisis.

The **systemic impact of this crisis** will require the curation and use of data to fully understand the financial scope of the crisis and help decision-makers respond and secure our economy.

**Let there be no mistake about it, what you do as information professionals impacts our businesses, our industries, and our entire society.**

# Agenda

## Why Knowledge Graph

- The Case for Knowledge Graph in the Enterprise
- EDM Council Open Knowledge Graph and FIBO Initiative

## Open Knowledge Graph/Open FIBO EDMC Updates

- New Capabilities
- Open FIBO Community

## Advancing Knowledge Graphs

- Solution providers with FIBO Accelerators
- Open Knowledge Graph Opportunity

## Knowledge Graph Training & Accreditation

- Course curricula and availability

## Q/A

# TODAY'S SPEAKERS



**David Newman**  
SVP, Innovation, Wells Fargo  
Chair, FIBO Program



**Mike Meriton**  
COO, Co-Founder, EDMC



**Robert Trypuz**  
KG/FIBO Project Manager  
MakoLab



**Jason Smith**  
VP / Technical Director  
OMG - Object Management Group



**Dean Allemang**  
Senior FIBO Advisor



**Pawel Garbacz**  
KG/FIBO Co-Program Lead  
MakoLab



**Elisa Kendall**  
Senior Ontologist



**Harsh Sharma**  
CDO Advisory  
Knowledge Graph Expert

# Why Knowledge Graph



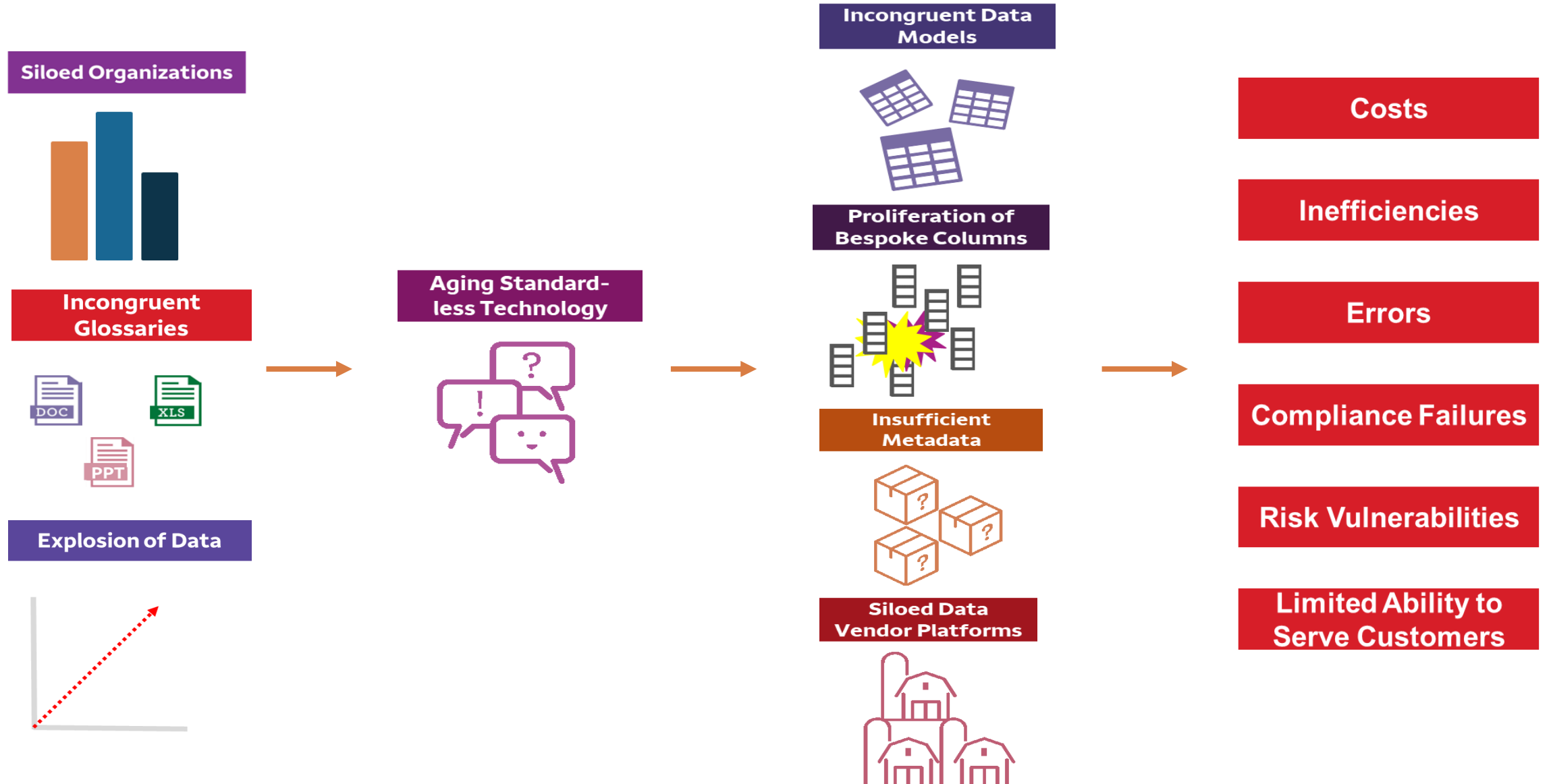
## The Case for Knowledge Graph in the Enterprise

**David Newman**

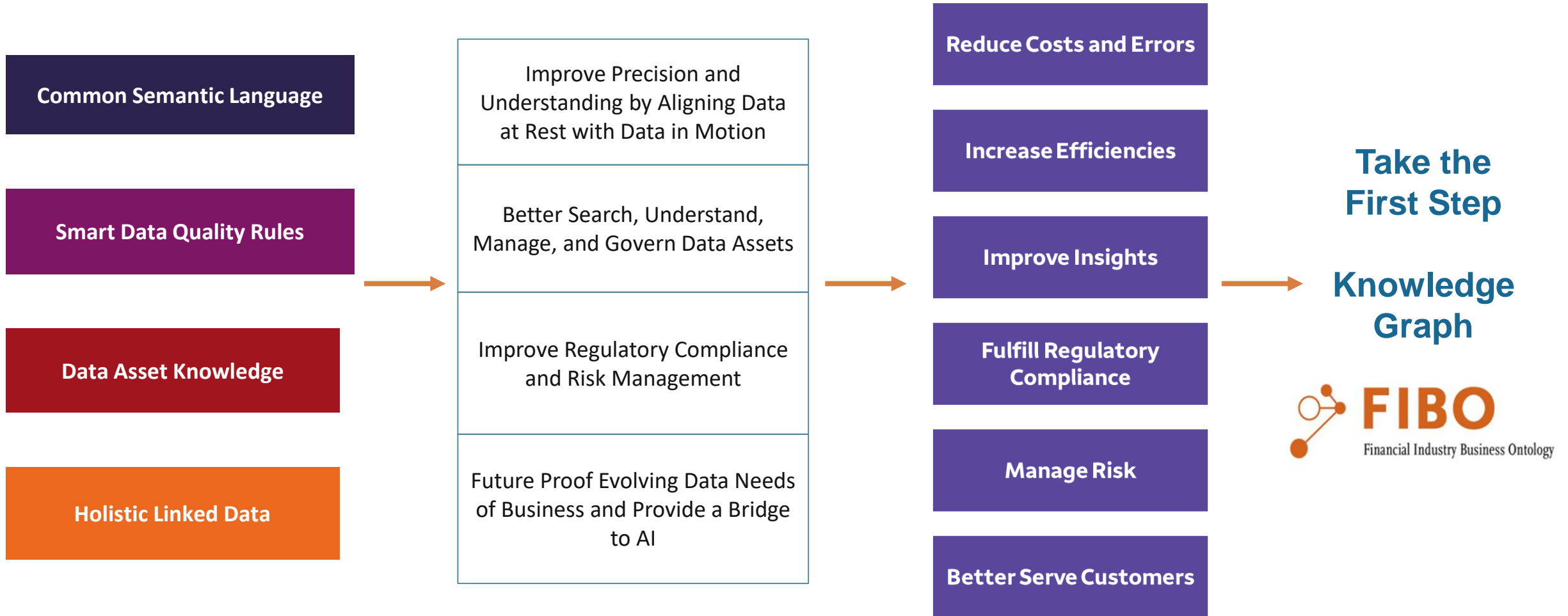
**SVP, Innovation, Wells Fargo Bank  
Chair, FIBO Program**



# THE CASE FOR KNOWLEDGE GRAPH IN THE ENTERPRISE



# THE CASE FOR KNOWLEDGE GRAPH IN THE ENTERPRISE



# Why Knowledge Graph



## EDM Council Open Knowledge Graph & FIBO Initiative

**Mike Meriton**  
COO, Co-Founder, EDMC





# Gartner Identifies Top 10 Data and Analytics Technology Trends for 2019

Augmented Analytics and Artificial Intelligence in the Spotlight

Trend No. 1: Augmented Analytics

Trend No. 2: Augmented Data Management

Trend No. 3: Continuous Intelligence

Trend No. 4: Explainable AI

**Trend No. 5: Graph**

**Trend No. 6: Data Fabric**

Trend No. 7: NLP/ Conversational Analytics

Trend No. 8: Commercial AI and ML

Trend No. 9: Blockchain

Trend No. 10: Persistent Memory Servers

..... Graph processing to continuously **accelerate data preparation** and enable more complex and adaptive **data science**.

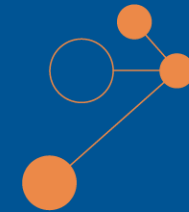
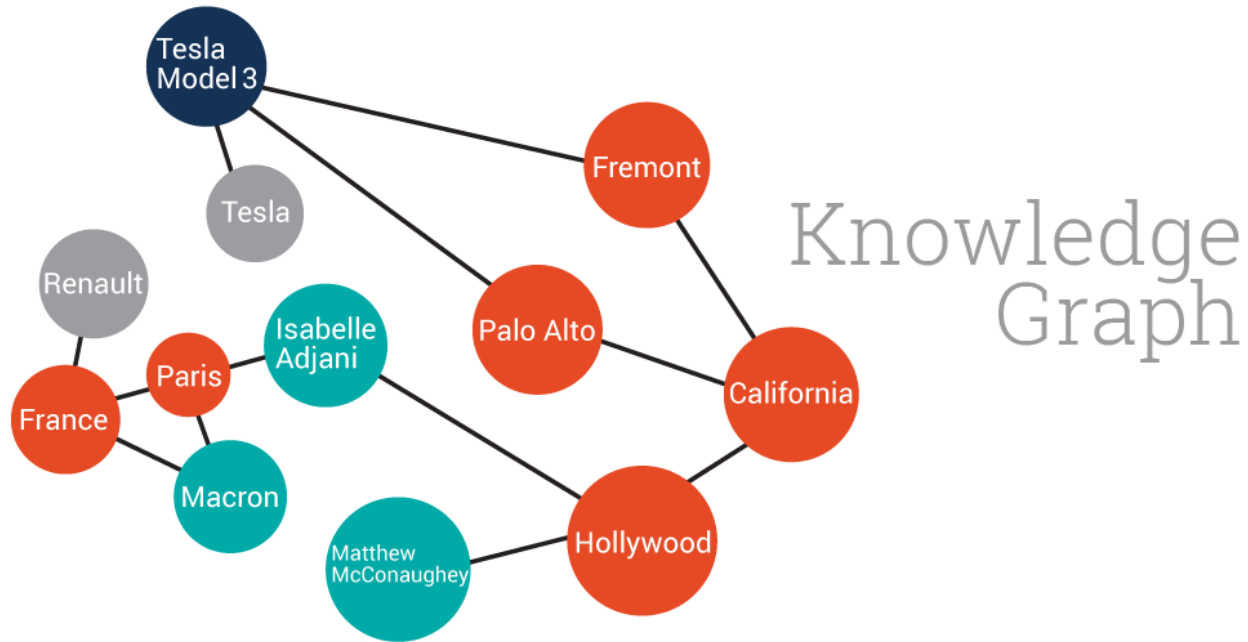
..... to efficiently model, explore and query data with **complex interrelationships across data silos**

..... **the need to ask complex questions across complex data**, which is not always practical or even possible at scale using SQL queries.

..... Data fabric enables **frictionless access and sharing of data** in a **distributed data** environment.

..... It enables a single and consistent data management framework, which allows **seamless data access and processing** by design across otherwise siloed storage.

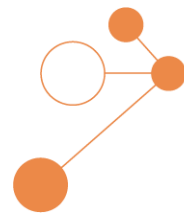
# SEMANTIC TECHNOLOGY AND KNOWLEDGE GRAPH



# FIBO

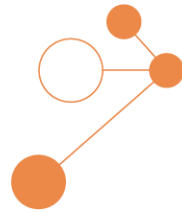
Financial Industry Business Ontology

- Hosted & Supported by EDM Council
- 8+ Years of Development
- \$5M+ Direct EDMC Investment
- MIT Open Source
- Industry Accelerator for Graph Initiatives



# OPENFIBO

Financial Industry Business Ontology

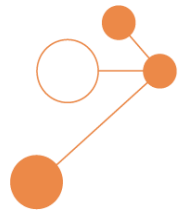


## OPENFIBO

Financial Industry Business Ontology

### What is Open FIBO?

- **Extending FIBO to a broader Open-Source development community**
  - Invite and encourage SMEs to contribute content, extensions and new structures
- **Focus on Business Use Cases to Deliver Industry Value**
  - **Shared lab** that can extend FIBO for solving industry business challenges & opportunities
    - Regulatory / Compliance / Risk / Fraud / Customer 360 / Alternative Data / More....



# OPEN Knowledge Graph

## EDMC Agenda: Advocate Knowledge Graph Adoption

1. Provide Knowledge Graph Awareness, Training and Certification Programs
2. Support Shared Industry Ontologies as Accelerators to Business Solutions
3. Support a Community of Knowledge Graph Advocates

# Open Knowledge Graph Open FIBO EDMC Updates



## New Capabilities

**Robert Trypuz**  
KG/FIBO Project Manager



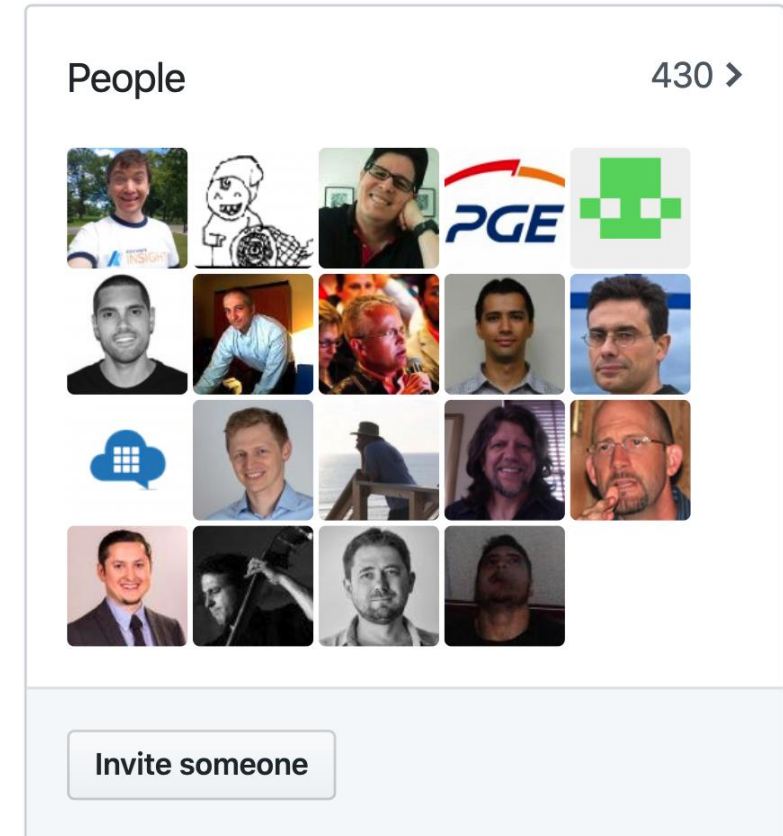
## Four Foundational Pillars of Open FIBO

1. Large and knowledgeable FIBO Community
2. Public, transparent, and well-documented FIBO development process
3. Stable and well-managed FIBO development infrastructure
4. OMG standardization of FIBO



## Pillar 1: FIBO Community

- FIBO Community is and always has been the most important pillar
- FIBO evolved out of concerns that arose during the 2008 financial crisis by individuals that had been working together in data governance and management
  - The most pressing issue at the time was that they needed to have **a shared, common vocabulary** that they could use within their institutions.
- FIBO Community
  - SMEs, ontology experts, and representatives of companies that implement FIBO on their KG platforms
  - **430 members** on GitHub and
  - over **4400 members** on EDMConnect platform

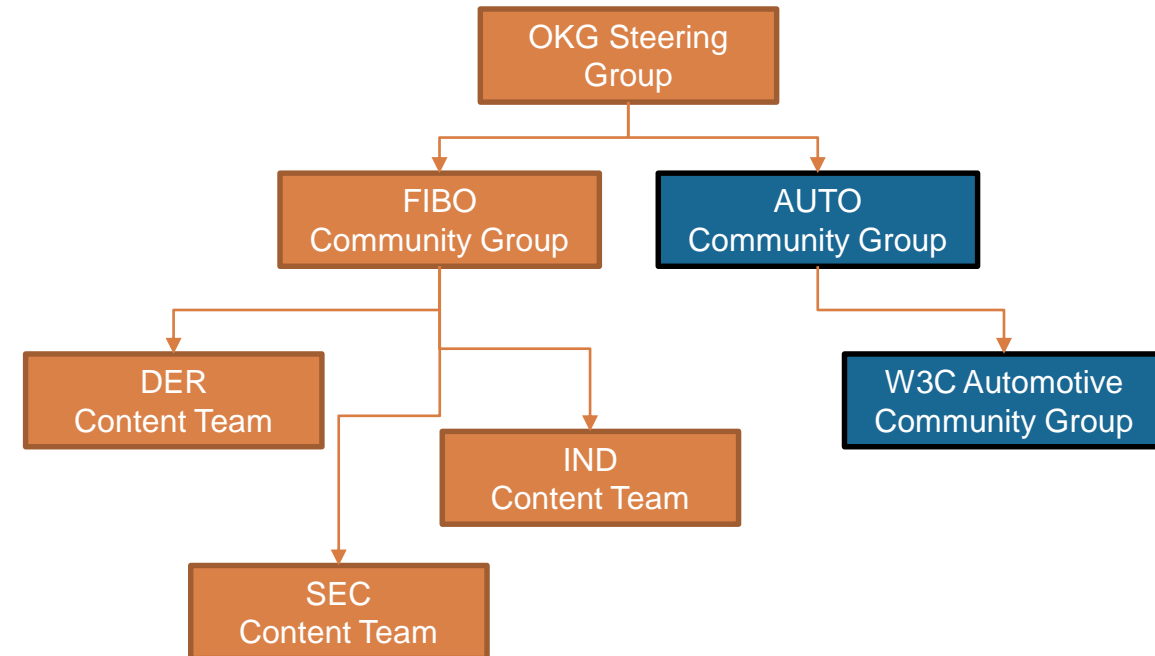




## Pillar 1: FIBO Community

### OKG / FIBO / AUTO Community

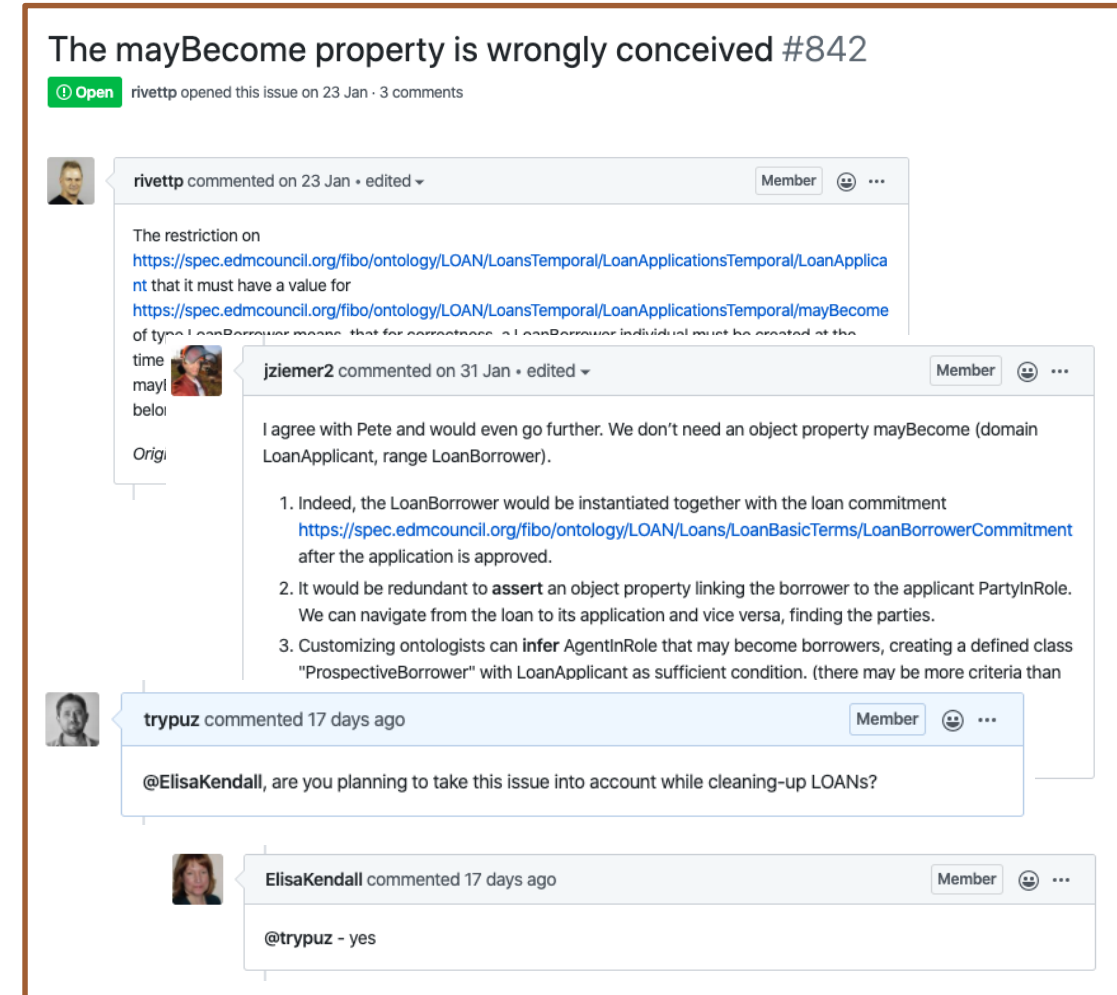
- **EDMC OKG Steering Group is responsible for...**
  - the strategic orientation of the FIBO/AUTO/... evolution
  - review and approval of new releases
  - changes in the Steering Group membership
- **EDMC Community Groups**
  - Community Group is always ontology-specific.
  - its role is to propose, discuss and prepare changes to ontology
- **Working Groups (aka Content Teams)**
  - focus on a chosen part of ontology



## Pillar 2: Transparency

### Transparency of FIBO Development Process

- FIBO code is publicly available and released under the open-source (MIT) license
- Open & public discussion concerning any changes in FIBO
- Be active on FIBO GitHub
  - Get involved in the discussion
  - Ask clarifying questions on recently opened issues to move the discussion forward
  - Answer questions for people on open issues
  - Review FIBO code on other people's submissions
  - Create an extension to FIBO
  - Call for a new working group
  - Let us know about bugs and gaps in FIBO
  - Validate FIBO definitions and restrictions



The mayBecome property is wrongly conceived #842

**Open** rivettp opened this issue on 23 Jan · 3 comments

**rivettp** commented on 23 Jan · edited

The restriction on <https://spec.edmouncil.org/fibo/ontology/LOAN/LoansTemporal/LoanApplicationsTemporal/LoanApplication> that it must have a value for <https://spec.edmouncil.org/fibo/ontology/LOAN/LoansTemporal/LoanApplicationsTemporal/mayBecome> of type `LoanBorrower` means that for correctness, a `LoanBorrower` individual must be created at the time mayBorrower is created.

**jziemer2** commented on 31 Jan · edited

I agree with Pete and would even go further. We don't need an object property `mayBecome` (domain `LoanApplicant`, range `LoanBorrower`).

1. Indeed, the `LoanBorrower` would be instantiated together with the loan commitment <https://spec.edmouncil.org/fibo/ontology/LOAN/Loans/LoanBasicTerms/LoanBorrowerCommitment> after the application is approved.
2. It would be redundant to **assert** an object property linking the borrower to the applicant `PartyInRole`. We can navigate from the loan to its application and vice versa, finding the parties.
3. Customizing ontologists can **infer** `AgentInRole` that may become borrowers, creating a defined class "`ProspectiveBorrower`" with `LoanApplicant` as sufficient condition. (there may be more criteria than

**trypuz** commented 17 days ago

@ElisaKendall, are you planning to take this issue into account while cleaning-up LOANS?

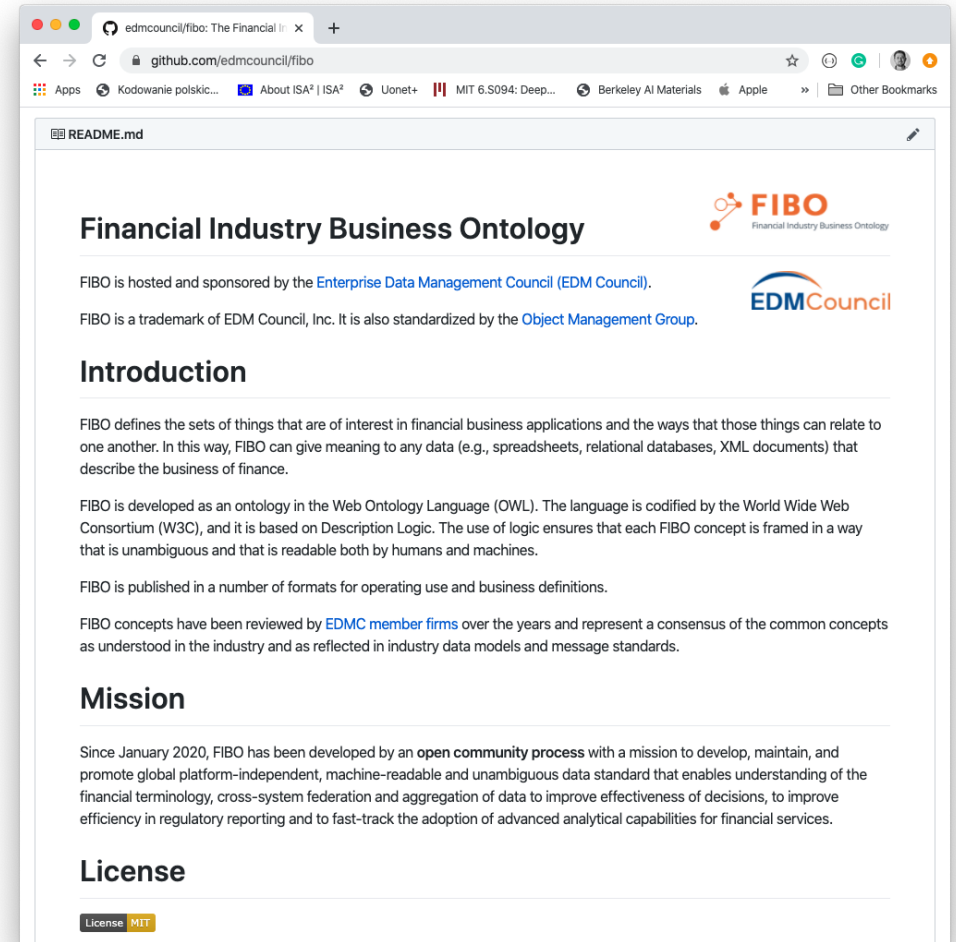
**ElisaKendall** commented 17 days ago

@trypuz - yes

## Pillar 2: Transparency

### Transparency of FIBO Development Process

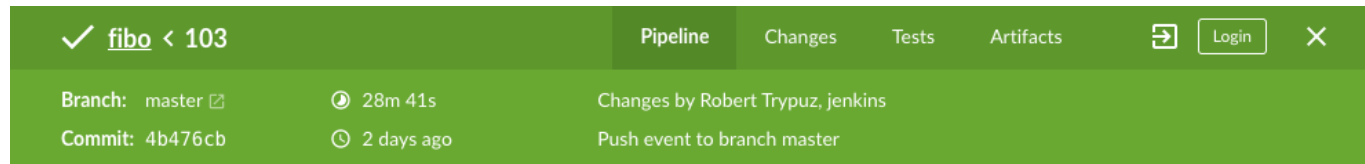
- A user-friendly space for FIBO development
- Professional FIBO documentation
  - **Ontology guide**
    - Principles of best practices
  - **Developer guide**
    - How to create your own FIBO extension



## Pillar 3: Infrastructure

### FIBO Development Infrastructure

- FIBO is developed as an ontology in the Web Ontology Language (OWL)
- Continuous Integration (automatic FIBO building and verification)

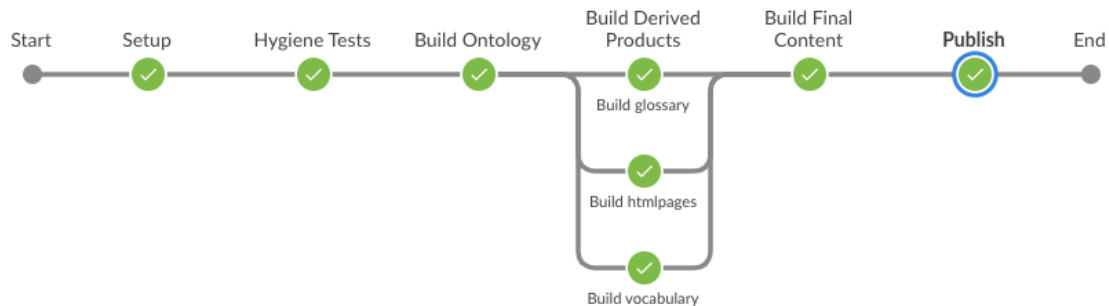


✓ fibo < 103

Branch: master 28m 41s Changes by Robert Trypuz, jenkins

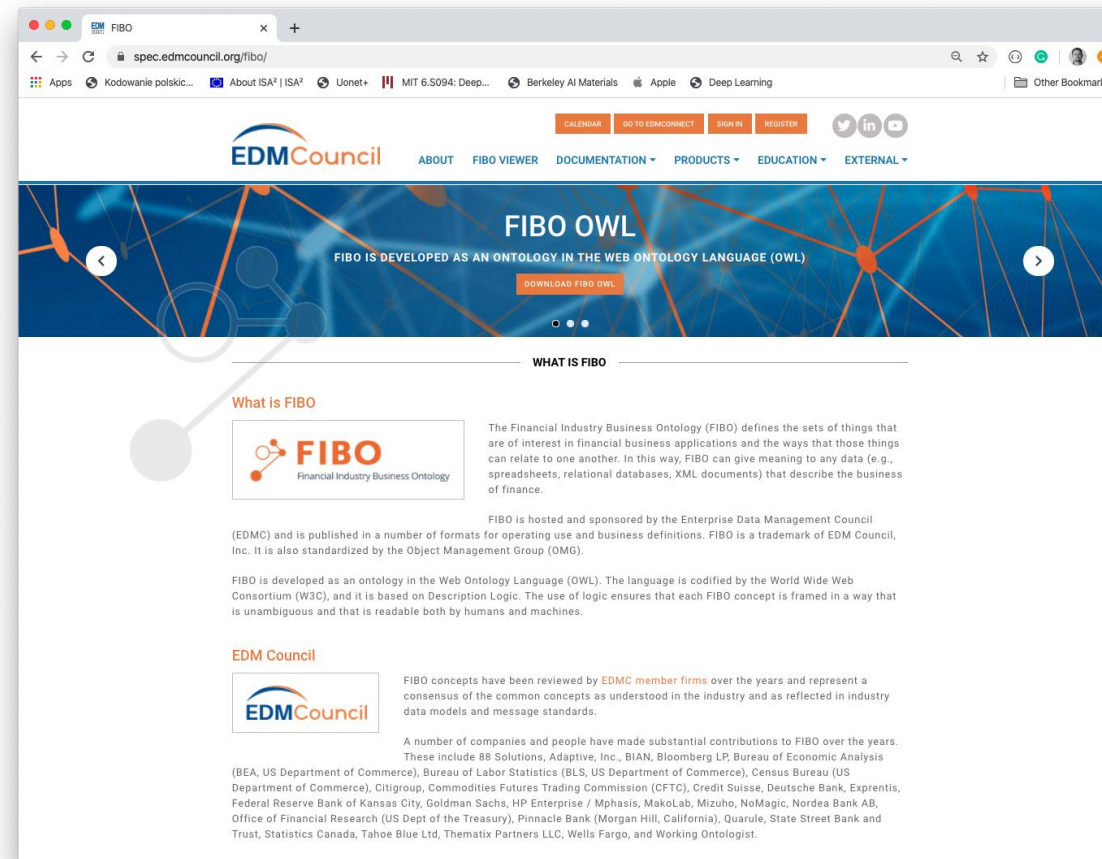
Commit: 4b476cb 2 days ago Push event to branch master

Pipeline Changes Tests Artifacts Login



## Pillar 3: Infrastructure

### FIBO Development Infrastructure



# OKG / OPEN FIBO – STANDARDIZATION

## Pillar 4: Standardization

### Collaboration with OMG



**Jason Smith**  
**VP / Technical Director**  
**Object Management Group**



# Open Knowledge Graph Open FIBO EDMC Updates



## Open FIBO Community

**Elisa Kendall**  
Senior Ontologist



- **Active groups include**
  - **Financial Business & Commerce (FBC) / Securities (SEC)**
    - Focus is on representing instrument master data
    - Recent accomplishments include new pricing ontology, inclusion of examples
  - **Derivatives (DER)**
    - Focus is on representing standardized regulatory reporting & counterparty exposure
    - Q2 release will include example swap data
  - **Indices and Indicators (IND)**
    - Focus is on market indices (currently provisional)
    - Recent accomplishments include examples of how to represent constituents of the DJIA, working jointly on pricing with SEC, and will be working on corporate actions



# FIBO WORKING GROUPS

- **Approach is use case driven**
  - **Summaries are available on the EDM Council web site**
    - <https://spec.edmouncil.org/fibo/use-cases>
  - **Detailed content is under development on our working group wikis**
  - **Ontology development guidelines are available**
    - [https://github.com/edmouncil/fibo/blob/master/ONTOLOGY\\_GUIDE.md](https://github.com/edmouncil/fibo/blob/master/ONTOLOGY_GUIDE.md)
    - Everything stems from use cases and preliminary terminology work
    - Naming conventions, modeling policies & best practices, QA guidelines
    - Growing number of automated tests help ensure that resulting ontologies meet QA policies
- **Working groups use GitHub for issue management and community input**
- **Organize a FIBO working group**
  - We help in the GTM organization + wiki

# Advancing Knowledge Graphs



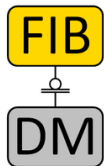
## Solution Providers with FIBO Accelerators

**Mike Meriton**  
COO, Co-Founder, EDMC



# SOLUTION PROVIDERS WITH FIBO ACCELERATORS

- They are many companies that are already using FIBO for themselves or their end clients
- We want to promote FIBO through business use cases
- Call to Action:
  - Call for business use cases and sample data sets
  - Publish and share with the EDMC Open Knowledge Graph Community
  - Continue to advance awareness and success



# Advancing Knowledge Graphs



## OKG / FIBO OPEN KNOWLEDGE GRAPH OPPORTUNITY

**Harsh Sharma**

CDO Advisory, Knowledge Graph Expert



# BUSINESS DRIVER FOR OPEN KNOWLEDGE GRAPH CONSORTIUM

From Crisis to Crisis – *Opacity of Enterprise Risk* brings the Global System to its Knees

Global Covid Cases: 556,291

3<sup>rd</sup> of Humanity under Lockdown

Covid Deaths: 25,239

Lack of *Trust* in Covid Data & Models

Unknown # of Silent Carriers

How many Covid Strains?

Opaque Financial System,  
Regulations, Processes,  
Transactions, Data...

Business is *Connected &*  
inter-dependent  
more than ever before!

## Health & Financial Crisis

**Need of the Hour!**

Understand '*Connectedness*' of  
your Business & develop

**Continuous Intelligence**

3.3 million unemployment Claims

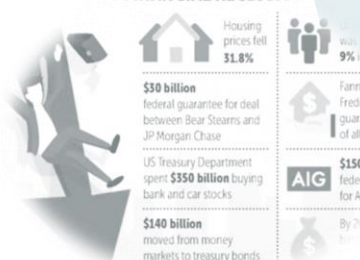
Stocks tumbled ~13%  
biggest one-day  
plunge ever

Disrupted supply-chains for  
~75% of U.S. businesses

G20 Pledges \$5  
Trillion Stimulus



Transparency of  
Data & Risk – not  
just a Buzz Word



## Pioneers

## \*Practitioners

## Use Cases

- Recommendation Engines (Pricing, IT Support, Employee 360), Conversational AI
- Anti-Money Laundering, Payments Fraud
- Data Protection, Privacy & Risk (PII360)
- Intelligent Data Catalog
- Device, Network 360, Supply-Chain Risk
- Energy Grid Optimization
- Covid360, Opioid Substance Abuse, Real-world Evidence, Personalized Medical Treatments

Analyze your business Risk, Recover & Pivot to Growth

Global, industry agnostic ecosystem to leverage and develop Knowledge Graphs of **mutualized value**

## Graph Consumers

**Financial Services, Insurance  
Life-Sciences, Healthcare, CPG,  
Retail**

CPG, CMT, Industrials, Resources...

## KGraph Technology Makers

Property Graphs, RFD Triple Stores, Semantic Graphs

Ontology Modeling, Reasoning Engines, NLP...

APIs, Microservices

Graph Visualization



## Open Knowledge Graph Shared Lab Initiative

**Governance, Architecture, Standards,  
Adoption KPIs, Mutualized Value  
Graphs/Use-Cases, Sandbox,  
Training...**

KG Image Courtesy Neo4J

## Enablers, Influencers

- Mgmt. Consultancies
- System Integrators
- Academics/Research orgs
- Regulators
- Government Agencies
- NGOs...

### Standards Bodies

- ISO (GQL Project), OMG, W3C...
- Industry Specific (HL7, ACORD...)

## Commercial Marketplaces

Cloud Marketplaces (AWS, Azure, GCP...)

Hedera Hashgraph

Blockchain App Stores (InsurTech) Intelligents

Open Source, Commercial Data Vendors

- **Business Planning & Development Sessions (Q2 / Q3 2020)**
  - Develop and socialize proposal: vision & Charter, business plan, operating model, governance, deliverables, roadmap...
  - Identify founding members, seek funding commitment
  - Prioritize high value Use Cases
  - Graph Powered Intelligence – Whitepaper
- **Soft launch & Operationalization (Q3/Q4 2020)**

**Complete Session Survey or reach out to let us know of your interest to participate**



# Knowledge Graph Training & Certification



**Mike Meriton**  
COO, Co-Founder  
EDMC



**Dean Allemang**  
Senior FIBO Advisor



**Pawel Garbacz**  
KG/FIBO Co-Program Lead





## **OPEN Knowledge Graph**

### Accredited Course Curricula - 2 Consecutive Days

#### **DAY 1**

- 1. Knowledge Graph Business Case and Market Adoption**
  - Perspective On Data
  - Industry Use Cases
  - takeaways
- 2. Knowledge Graph Enterprise Architecture**
  - Enterprise Architecture overview
  - Data languages (RDF, RDFS, SKOS)
  - Query language (SPARQL)
  - Modeling Language (OWL)
  - Enterprise Architecture Ecosystem

#### **DAY 2**

- 3. FIBO Industry Model review**
  - Structure
  - Content
  - Infrastructure
- 4. Knowledge Graph Hands-on exercise**
  - Swaps in Finance
  - Toxic byproducts in Agriculture
  - Automotive manufacturing
- 5. Course Summary & Accreditation**
  - Summary / Survey / Accreditation



## OPEN Knowledge Graph

### Open Class Course Offerings

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> AMERICAS      | May 5 <sup>th</sup> and 6 <sup>th</sup>   | 08:00am – 02:00pm Pacific<br>11:00am – 05:00pm Eastern                                |
| <input type="checkbox"/> APAC          | May 12 <sup>th</sup> and 13 <sup>th</sup> | 08:00am – 02:00pm Singapore<br>09:00am – 03:00pm Japan<br>10:00am – 04:00pm Australia |
| <input type="checkbox"/> UK/EMEA/INDIA | May 19 <sup>th</sup> and 20 <sup>th</sup> | 08:30am – 02:30pm BST<br>09:30am – 03:30pm CEST<br>01:00pm – 07:00pm IST              |

**Or schedule your company dedicated (virtual) class**

To register for the classes, [click here](#)

# QIA





## OPEN Knowledge Graph

### 1. Visit the NEW FIBO Website and Join the Community

- Download FIBO / Explore FIBO Documentation / New FIBO Viewer
- Join FIBO Working Group(s) / Start a new working group
- Visit: <https://spec.edmouncil.org/fibo/>

### 2. Express an Interest in Strategic Collaboration

- Have your organization participate in Open Knowledge Graph Shared Lab Initiative
- Submit Business Use case examples/demonstrations
- Email: [mmeriton@edmouncil.org](mailto:mmeriton@edmouncil.org)

### 3. Register for Open Knowledge Graph Training & Accreditation – May 2020

- Visit the Training Landing Page to learn more and register
- Visit: <https://edmouncil.org/page/OKGVirtualTraining>

## Give us your feedback

Complete the FIBO Webinar survey ([FIBO WEBINAR SURVEY](#))



<https://www.surveygizmo.com/s3/5523186/FIBO>



# Thank You

## Next Webinar: June 3<sup>rd</sup>

