



Data Management Best Practices for Regulatory Harmonization

Written Input to the SEC-CFTC Joint Harmonization Initiative

Submitted by the EDM Association (EDMA)

October 1, 2026

Submitted to:

The Honorable Paul S. Atkins, Chairman, U.S. Securities and Exchange Commission
The Honorable Michael S. Selig, Chairman, U.S. Commodity Futures Trading Commission

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Abstract / Executive Summary

The EDM Association (“EDMA,” also known as the EDM Council) submits this written input in support of the SEC-CFTC Joint Harmonization Initiative and the Memorandum of Understanding Regarding Harmonization in Areas of Common Regulatory Interest, signed by the Commissions on March 11, 2026 (the “MOU”). Drawing on data management practices proven across the financial industry and the public sector, EDMA offers recommendations intended to make the harmonization contemplated by the MOU more durable and less costly for both the agencies and market participants.

The MOU commits the SEC and CFTC to streamline regulatory reporting and to work toward practical interoperability, including compatible data standards and analytical tools. EDMA's submission addresses these commitments at the level of individual data elements, offering five practical recommendations: (1) adopt the Legal Entity Identifier (LEI) and open ISO standards to identify entities and products consistently; (2) harmonize the meaning of data, not just its format, using shared machine-readable definitions built on the Financial Industry Business Ontology (FIBO); (3) build on governed, trusted data foundations at each agency using established frameworks such as DCAM and CDMC; (4) align the Initiative with the Commissions' implementation of the Financial Data Transparency Act of 2022 (FDTA) so that common standards are adopted once; and (5) test harmonization measures with industry through structured public-private collaboration and digital twin simulation before finalization.

EDMA is a global, neutral, non-profit trade association convening more than 700 member firms and 30,000 data management and analytics professionals across financial institutions, technology firms, and government agencies. The recommendations in this submission reflect standards and practices already in production across the financial industry and in parts of the federal government today.

October 1, 2026

The Honorable Paul S. Atkins
Chairman
U.S. Securities and Exchange Commission (SEC)
100 F Street NE, Washington, DC 20549

The Honorable Michael S. Selig
Chairman
U.S. Commodity Futures Trading Commission (CFTC)
Three Lafayette Centre, 1155 21st Street NW, Washington, DC 20581

Re: Written Input to the SEC-CFTC Joint Harmonization Initiative¹: Data Management Best Practices for Regulatory Harmonization.²

Dear Chairman Atkins and Chairman Selig:

The EDM Association (“EDMA,” also known as the EDM Council) submits this written input in support of the SEC-CFTC Joint Harmonization Initiative and the Memorandum of Understanding Regarding Harmonization in Areas of Common Regulatory Interest signed by the Commissions on March 11, 2026 (the “MOU”).³ We commend both Commissions for it. Our purpose in writing is to offer data management best practices, proven across the financial industry and the public sector, that can make the harmonization the MOU sets out an initiative that is more durable and less costly for the agencies and for market participants.

Article III, paragraph 2(e) of the MOU commits the Commissions to “streamlining regulatory reporting for trade data, funds, and intermediaries,” and Article V, paragraph 3 commits them to “work toward practical interoperability where feasible, including compatible data standards and analytical

¹ The U.S. Securities and Exchange Commission (SEC) is a member of the Data & Analytics Consortia of the EDM Association.

² Submitted via the Commissions’ Joint Harmonization Initiative written input portal and to Harmonization@sec.gov and Harmonization@cftc.gov.

³ Memorandum of Understanding Between the U.S. Securities and Exchange Commission and the U.S. Commodity Futures Trading Commission Regarding Harmonization in Areas of Common Regulatory Interest (Mar. 11, 2026), available at <https://www.sec.gov/files/mou-sec-cftc-2026.pdf>. The MOU supersedes the prior coordination MOU of July 11, 2018.

tools.”⁴ These are data management commitments, and they will be tested at the level of individual data elements. What follows is what we have seen perform well in practice.

We offer five practical recommendations to help the Commissions operationalize data harmonization. First, identify entities and products in the same way, using open identifiers, such as the Legal Entity Identifier (LEI). Second, harmonize the meaning of data and formats, using shared machine-readable definitions built on a standard open-source ontology. Third, build on governed, trusted data foundations at each agency, using standard best practice frameworks such as EDMA’s Data Management Capability Assessment Model (“DCAM”)⁵ and Cloud Data Management Capabilities framework (“CDMC”)⁶ to measure organizational capabilities for governance, quality, lineage, controls, and on-premise, hybrid, and cloud-based data environments. Fourth, align this work with the Commission’s implementation of the Financial Data Transparency Act of 2022⁷ (the “FDTA”) so that common standards are adopted once. Fifth, test harmonization measures with industry and the data management community through structured public-private collaboration and digital twin simulations before finalization.

I. Background

The EDM Association (EDM Council, d/b/a “EDMA”) is a global, neutral, non-profit trade association founded in 2005, when C-level data executives from Tier 1 financial institutions and leading data management providers came together to advance data management as a business and operational priority.⁸ Today, EDMA convenes more than 700 member firms and 30,000 data management and analytics professionals across financial institutions, technology firms, and government agencies, and many national and international regulators participate as members, valuing the Association’s neutrality as a trusted forum for public and private sector dialogue.

EDMA develops and maintains several widely adopted open frameworks and standards, including the DCAM and CDMC Frameworks, and the Financial Industry Business Ontology (FIBO)⁹. In 2025, EDM Council expanded its scope through its acquisition of the Object Management Group (OMG), broadening its role in data and standards development, becoming the EDM Association¹⁰. The principal authors of this letter have served in senior data roles in the federal government, including at

⁴MOU, Art. III para. 2(e); Art. V para. 3., <https://www.sec.gov/files/mou-sec-cftc-2026.pdf>

⁵ DCAM – Data Management Capability Assessment Model, EDM Association, <https://edmcouncil.org/frameworks/dcam/>.

⁶ CDMC – Cloud Data Management Capabilities, EDM Association, <https://edmcouncil.org/frameworks/cdmc/>.

⁷ Financial Data Transparency Act Joint Data Standards, 91 Fed. Reg. 38,246 (June 25, 2026) (final rule), <https://www.federalregister.gov/documents/2026/06/25/2026-12787/financial-data-transparency-act-joint-data-standards>.

⁸EDM Association, <https://edmcouncil.org/about/>.

⁹ FIBO – Financial Industry Business Ontology, EDM Association, <https://edmcouncil.org/frameworks/industry-models/fibo/>.

¹⁰ EDM Association Completes Acquisition of Object Management Group, Creating World’s Largest Data and Standards Community, EDM Association, <https://edmcouncil.org/announcement/edm-association-completes-acquisition-of-object-management-group-creating-worlds-largest-data-and-standards-community/>.

the Department of the Treasury and the Securities and Exchange Commission, and have served in roles across the data, technology, and financial services industries. The identifier and semantic standards recommended below are open and available. We have no commercial interest in the adoption of the Legal Entity Identifier (LEI)¹¹.

II. The Architecture of Semantic Data: FAIR Principles, Ontologies, and AI Efficiency

The FAIR principles¹²—Findable, Accessible, Interoperable, and Reusable—serve as the foundational blueprint for modern metadata standards. In an era overflowing with data, simply storing information is insufficient; it must be discoverable and machine-actionable. Establishing metadata standards guided by FAIR ensures that data is not merely a stagnant digital artifact, but a dynamic, verifiable asset.

- Findability dictates that metadata must be richly described and assigned globally unique, persistent identifiers (PIDs), making it easy for both humans and algorithms to locate.
- Accessibility ensures that this metadata can be retrieved using standardized, open protocols, even when the underlying primary data is heavily restricted.
- Interoperability is perhaps the most critical for metadata, requiring the use of formal, shared vocabularies and standardized languages. This allows disparate systems to communicate effortlessly, breaking down institutional data silos.
- Reusability demands clear data usage licenses and detailed provenance, ensuring subsequent systems can trust and build upon the data.

By weaving FAIR principles into metadata standards, organizations transform chaotic "dark data" into structured, high-value knowledge ecosystems. Ultimately, FAIR-compliant metadata accelerates innovation by guaranteeing that information remains persistently useful across varying systems, disciplines, and time.

While metadata and ontologies are distinct concepts, they work together as the twin engines of data semantics. Metadata provides the descriptive characteristics of a digital asset—such as its author, creation date, format, and source. Ontology maps the deeper, conceptual meaning and rules governing the relationships between those assets in a human and machine-readable format.

When integrated, an ontology acts as the formal vocabulary and rulebook for the metadata. Instead of using flat, free-text tags that invite ambiguity, metadata leverages the structured classes and relational properties defined by the ontology, enabling the knowledge graph. This synergy creates

¹¹Global Legal Entity Identifier Foundation (GLEIF), <https://www.gleif.org/>; ISO 17442, Financial services – Legal entity identifier (LEI).

¹² Mark D. Wilkinson et al., *The FAIR Guiding Principles for Scientific Data Management and Stewardship*, 3 Sci. Data 160018 (2016), <https://doi.org/10.1038/sdata.2016.18>.

powerful semantic networks, allowing machines to read not just the surface-level labels, but truly understand the contextual meaning of the data.

Integrating ontologies into Artificial Intelligence systems drastically enhances their operational efficiency, particularly for Large Language Models (LLMs). By providing a structured, deterministic framework of domain relationships—a trusted context—ontologies reduce the burden on AI to infer logic from scratch.

This significantly lowers compute and token costs, as prompts no longer need to exhaustively explain complex background rules, hierarchies, or definitions; the AI can simply query the established knowledge graph. Furthermore, this semantic grounding heavily minimizes hallucinations. Because the ontology restricts the AI to validated, standardized relationships rather than purely probabilistic guesses, the system consistently yields outputs of much higher quality, accuracy, and reliability.

III. Identify Entities and Products Consistently

Harmonization begins with agreement on what is reported related to whom. When two agencies identify the same institution or instrument differently, nothing downstream can be joined without reconciliation: exposures cannot be aggregated across markets, and every firm answerable to both regulators maintains parallel identification schemes at its own expense.

In 2011, EDM Association’s President, John Bottega, co-authored the Federal Reserve staff paper, since known as the ‘Linchpin Paper,’ proposing the Legal Entity Identifier, after the 2008 crisis showed how the absence of a universal entity identifier and of entity-to-parent relationship data slowed officials trying to assess exposures. The LEI (ISO 17442) is overseen by the Global Legal Entity Identifier Foundation (GLIEF) under the Financial Stability Board and U.S. regulators; it carries entity relationship data, and it is cost-effective to use.¹³ Adopting it as the common entity identifier wherever the Commissions’ harmonized activities involve the same parties, and preferring open ISO standards for products and instruments, is the most effective and cost-efficient form of harmonization available: the standards exist, both agencies already accept them in various contexts, and no rule needs to be reconciled for two agencies to name entities the same way.

IV. Harmonize Meaning, Not Just Format

Format alignment is the smaller, more visible part of data harmonization. Two agencies can require identical file formats and field names and still disagree about what a field means in context.

Consider what happens today inside any firm answerable to both Commissions. Reporting substantially the same activity to two regulators is not a matter of reformatting one report into another;

¹³J. Bottega and L. F. Powell, “Creating a Linchpin for Financial Data: The Need for a Legal Entity Identifier” (Federal Reserve Board, Finance and Economics Discussion Series 2011-07, July 2011).

it requires staff and systems whose entire function is to reconcile definitions between two rulebooks. That translation work is performed privately, repeatedly, and invisibly across the industry, and every firm pays for it separately. Harmonization done well moves that work into one shared effort, done once.

The practice EDMA recommends is to address the semantic layer directly: define the meaning of each shared data element once, in human and machine-readable ontologies, and map each agency's existing fields to those definitions. This approach fits the MOU's structure better than format convergence, because it preserves each Commission's independent rulebook, which the MOU expressly protects, while delivering interoperability. It also gives the agencies a principled way to find and retire duplicative data elements. Mapping is painstaking, bounded work, and open resources exist to shorten it, among them the Financial Industry Business Ontology ("FIBO"), an MIT-licensed semantic standard for financial entities, instruments, and contracts, developed by EDMA with industry and public sector contributors.¹⁴

V. Build on Governed, Trusted Data Foundations

Identifiers and shared meaning rest on ordinary discipline: clear ownership of data, defined quality standards and measurement, documented lineage from source to use, and controls that protect sensitive and non-public information. The MOU already anchors its confidentiality obligations to NIST information security standards¹⁵, and we suggest extending that same to data quality. If the Commissions agree in advance on an agreed definition of "accurate and complete" for information exchanged under the MOU, and measure against that agreement, harmonized reporting will not simply relocate data problems from one agency to the other.

Established frameworks can inform and operationalize this work, most notably EDMC's Data Management Capability Assessment Model (DCAM) and Cloud Data Management Capabilities (CDMC) framework. Specifically, CDMC provides a robust control suite designed to secure risk across cloud and AI data environments through fourteen key automated controls. Applying CDMC enables the Commissions to establish a unified "catalog of catalogs"—a federated metadata architecture that provides visibility into data lineage, sensitivity labels, and access policies across jurisdictional and cross-border boundaries. Furthermore, by automating the mapping of CDMC controls directly to corresponding NIST security and privacy controls, the Commissions can continuously enforce and audit compliance at scale, ensuring that shared data remains both high-quality and cryptographically, procedurally, and contextually secure throughout its entire lifecycle.

¹⁴Financial Industry Business Ontology (FIBO), <https://edmcouncil.org/frameworks/industry-models/fibo/>; specification at <https://spec.edmcouncil.org/fibo/>. Public sector contributors to FIBO and to the related Commons Ontology Library have included the CFTC and NIST, and FIBO has been used by the Government Accountability Office among other agencies.

¹⁵MOU, Art. IV para. 2 (providing that non-public information shared under the MOU is to be protected consistent with NIST information security standards and best practices).

VI. Alignment with the FDTA

The Commissions are also, at this moment, implementing agencies under the FDTA. The joint data standards final rule, published June 25, 2026 and effective October 1, 2026, adopts the LEI as the common legal entity identifier and requires machine-readable data with metadata documented in taxonomy or ontology models that define its semantic meaning. Much of what we recommend above is, in other words, already the direction of federal ruling, which it puts to the agencies to align on execution. Our encouragement is simply that the Initiative and FDTA implementation be run as one effort, on one timeline, so that identifiers, semantic standards, and governance practices are adopted once, and reporting firms are not asked to absorb two migrations. EDMA supported the LEI and the semantic metadata standard in its response to the FDTA joint proposed rule and reaffirms those positions here.¹⁶

FIBO covers the GLEIF LEI and all of the other standards called out in the FDTA. In fact, FIBO's representation of the LEI and related metadata was the source for the version of the more limited ontology published by the GLEIF. FIBO also includes most mainstream financial instrument identifiers and is 100% aligned with the FIGI. It also covers the USPS Publication 28 for addresses, US states, and other geographical direction symbols, ISO 4217 currency codes, ISO 8601 dates, and so forth, using standard patterns specified in the Object Management Group (OMG) Commons Ontology Library as the basis for representation. A number of the patterns in Commons were derived from ISO 11179, to which the OMG, and by extension EDMA, is a contributor via ISO/IEC JTC 1 SC32.

Metadata and establishing trusted context is the connective tissue that makes harmonization durable. Common identifiers and shared definitions only deliver value when they are accompanied by metadata standards that describe provenance, ownership, lineage, quality rules, permissible use, access controls, and the semantic meaning of each data element in a consistent and machine-readable way. This is also the practical expression of the FAIR principles: data should be findable, accessible, interoperable, and reusable by authorized users and systems. Applying FAIR-aligned metadata standards will help the Commissions reduce duplicative collection, improve transparency into data quality and fitness for purpose, and create a foundation for responsible analytics, automation, and AI. The recommendations below therefore focus not only on common formats, but on the metadata, governance, and standards needed to make harmonized regulatory data trusted and usable over time.

VII. Pre-Implementation Testing: Utilizing Digital Twin Technology to De-Risk Regulatory Harmonization

EDM Association recommends the Commissions validate proposed data harmonization measures through digital twin simulation before final rulemaking to minimize market disruption and technical

¹⁶EDM Council Response to the FDTA Joint Proposed Rule (Oct. 21, 2024), available in the FDTA joint rule comment file.

friction. Digital twin frameworks¹⁷ enable the creation of virtual, composable testbeds that mirror real-world systems, data flows, and operational dependencies. By establishing a public-private digital twin simulation, the SEC and CFTC can test harmonized data schemas, stress-test cross-agency data integration, and model multi-jurisdictional reporting scenarios using synthetic and historical market data. This iterative testing environment allows regulators and market participants to identify edge cases, verify schema interoperability, and refine data quality controls before new reporting requirements are finalized and operationalized across regulated entities.

VIII. Recommendations and Conclusion

In summary:

1. **Adopt the LEI as the common entity identifier** for the Commissions' harmonized activities, and prefer open ISO standards for products and instruments.
2. **Harmonize meaning, not just format.** Align common data elements with FIBO (Financial Industry Business Ontology), the open-source ontology industry standard, to publish shared, machine-readable definitions and map each agency's existing fields to it rather than rewriting either rulebook.
3. **Set shared data quality and governance expectations**, including agreed standards for accuracy and completeness, for information exchanged under the MOU, leveraging established industry frameworks—such as DCAM (Data Management Capability Assessment Model) for core data management and CDMC (Cloud Data Management Capabilities) for hybrid and cloud environments—to set agreed standards for accuracy, completeness, and governance controls for information exchanged under the MOU.
4. **Run the Initiative and FDTA implementation as one effort**, on one timeline, with the FDTA joint standards as the default identifiers and formats for Initiative workstreams.
5. **Test harmonization measures with industry and the data management community** through structured public-private collaboration and digital twin simulation of use-cases before they are finalized.

Data harmonization is achievable. The practices above are in production across the financial industry and in parts of the federal government today. We would welcome the opportunity to discuss any of them with Initiative staff.

¹⁷ EDM Association provides digital twin test-beds for public-private partnership programs as part of the Digital Twin Consortium, <https://dtc.org>

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