



DATA Act Information Model Schema (DAIMS)

Overview

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1. Introduction

As the world creates vast amounts of data and relies upon it to perform vital business and societal functions, standardizing data structures has become more important than ever. Data standards promote the consistent recording of information and are fundamental to the efficient exchange of information. They establish the meaning of data, and provide the rules for structuring information, so that the data can be reliably read, sorted, indexed, retrieved, communicated between systems, and shared.¹ Research has shown a strong correlation between the use of international data standards and economically strong industries². Because of the value data standards have provided the private sector in delivering digital services, the federal government has shifted towards becoming a data-centric organization, embracing the strategic and tactical value of the primacy of data, and emphasizing the importance of using international industry standards where appropriate³.

As an integral consumer and provider of data, the federal government has begun managing information as a strategic asset. This was exemplified with the passage of a seminal piece of legislation called the Digital Accountability and Transparency Act of 2014 (DATA Act)⁴. The DATA Act formalized the establishment of government-wide data standards for spending data and their subsequent publication for transparency. The DATA Act aligns the federal government with the recognized and valued results of leading organizations and industries who are data-centric. The DATA Act and mature organizational data management processes enable the strategic use of federal data assets to drive decision-making.

As one of the core requirements of the DATA Act, the development of government-wide data standards ensures the reporting of reliable, consistent federal spending data for public use. The Office of Management and Budget (OMB) and the Department of the Treasury (Treasury) collected public input and feedback from federal agencies and implemented an agile development methodology to create the DATA Act Information Model Schema (DAIMS). DAIMS is the authoritative source for the terms, definitions, formats and structures for hundreds of distinct data elements, which tell the story of how federal dollars are spent. It includes artifacts that provide technical guidance for federal agencies about what data to report to Treasury including the authoritative sources of the data elements and the submission format. The DAIMS documents also provide data consumers with information and context to better understand the inherent complexity of the data.

As previously noted, the goal of DAIMS is to support the transparency of how federal dollars are spent. While DAIMS is federally oriented, further refinement and evolution of the standard will promote broader use within individual federal agencies for internal reporting, and within the state

¹ Data Standards FAQs, <http://vraweb.org/resources/cataloging-metadata-and-data-management/data-standards-faqs>

² “Today’s State of the Art Global Solutions for CEO’s”, ISO International Standards Report, http://www.iso.org/iso/ceo_brochure.pdf

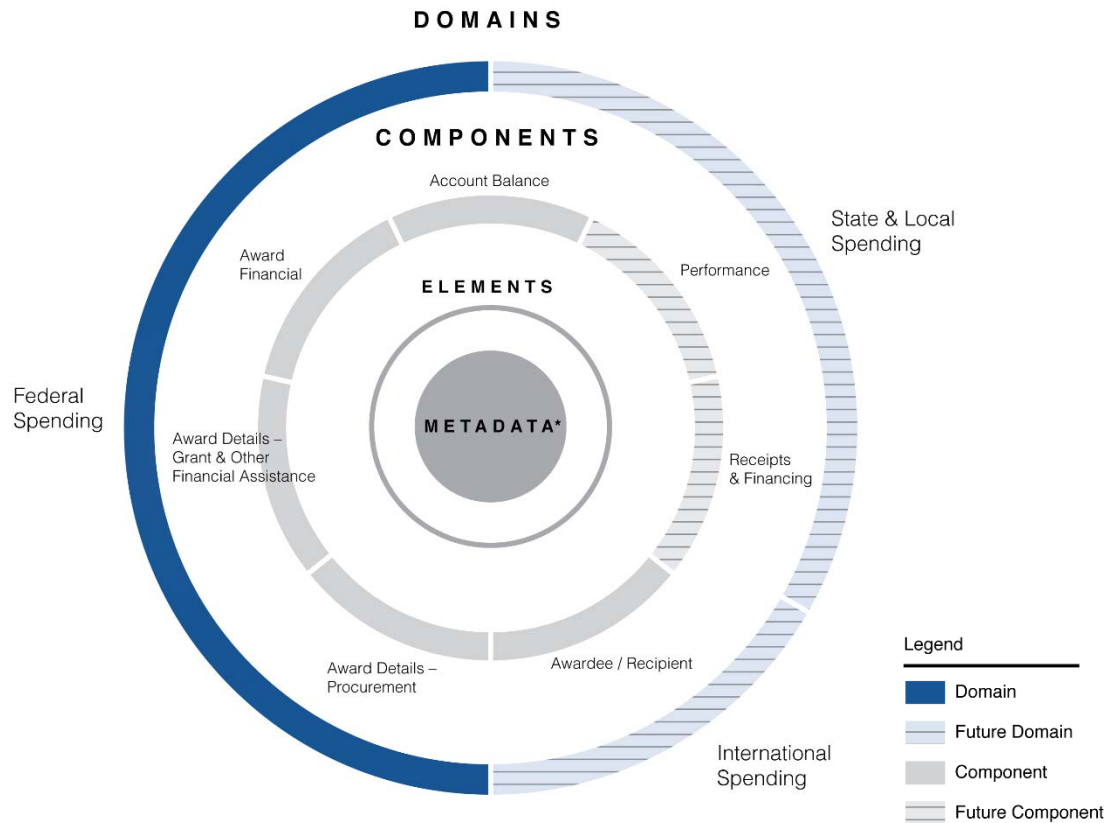
³ “Open Data Policy – Managing Information as an Asset”, <https://project-open-data.cio.gov/policy-memo/>

⁴ DATA Act, Public Law 113-101, <https://www.congress.gov/113/plaws/publ101/PLAW-113publ101.pdf>

and local governments where terminology and data element structures may differ. DAIMS will also evolve to support additional use cases to round-out financial reporting, such as grants management and performance reporting.

2. Scope

The DAIMS standard is the authoritative data standard for reporting across multiple mission support domains (Figure 1). DAIMS is data centric and defines data elements and their relationships independent of the data source or system. This standard should be reused for other government wide reporting initiatives involving financial, procurement, grant, or other financial assistance data. DAIMS can be extended and reused as the core standard for other communities of interest such as state and local government spending reporting, and the World Bank macro, financial and sector reporting.



* DAIMS metadata leverages ISO/IEC 11179 standard for metadata registry

Figure 1. DAIMS Conceptual Model

This standard:

- Covers five components: Account Balance, Award Financial, Award Details -Procurement, Award Details - Grant & Other Financial Assistance, Awardee/Recipient. The future components include: Receipts & Financing, and Performance
- Includes data elements that are core to the domains and necessary for sufficient standardization of federal spending data
- Does not include data elements that are adjacent to the DAIMS domains. For example, the region and population information from the Census Bureau are adjacent to federal spending and are not included in DAIMS

3. Value of the DAIMS

The development and implementation of data standards offer solutions to some of the pervasive issues within information management. These include but are not limited to:

- A lack of strategic direction for the overall technology environment
- The establishment of siloed data systems with minimal or no integration
- Data quality issues, including a lack of consistency, duplication, and out-of-date information
- The lack of enterprise-wide definitions for information types and values (no common taxonomy)

The DAIMS ecosystem establishes a common framework for curating, hosting, and publishing financial data as well as enhancing transparency. Furthermore, this framework can be extended to include future data sources for integration with financial data

This framework includes a standard vocabulary to build additional value-added services, tools, or programs. Common vocabulary supports information sharing and provides documentation to support development, discovery, dissemination, and reuse of financial data. This vocabulary can be extended and reused as the core standard for other functional domain such as state and local spending data transparency and World Bank macro, financial and sector reporting.

DAIMS provides decision makers with context on data sources and relationships. To enhance the quality of governmental decision-making by enabling accurate, timely, complete, and relevant information to decision makers across the broad spectrum of financial data.

DAIMS reduces risk in development efforts for users by having common data standards, processes, and methodologies published in common framework. The data standard improves organizational performance by breaking down stovepipes enabling enterprise-wide information sharing based on a consistent financial model.

The data standard integrates various government data repositories and sources into a single data store for advanced data analytics and data mining. It enables effective sharing of spending information – improving communication improves decision-making. It reduces the amount of manual intervention in information processing and facilitating straight-through processing, which increases productivity and can reduce costs. When the DAIMS benefits are integrated with a forward-thinking information management strategy, the net effect yields unparalleled advantages.

Furthermore, DAIMS provides the metadata for:

- Resource discovery – Allowing resources to be found by relevant criteria by bringing similar resources together, distinguishing dissimilar resources, and providing location information
- Interoperability - Being understood by machines and humans to enable the exchange of data with minimal loss of content and functionality; cross-repository searching
- Digital identification – Providing persistent identifiers
- Archiving and preservation - Tracking the lineage of a data object from its origin, through how it has been modified; detailing physical characteristics; documenting its behavior for future emulation

4. Consensus-based Approach

Standardization begins with defining the structure and semantics of the model. Model views are defined for data that agencies must report, data pulled from interfaced systems, and data accessed by query and download to the users. The DAIMS also includes technical standards such as the data submission specification and the machine-readable version of the taxonomy leveraging the eXtensible Business Reporting Language (XBRL).

The DAIMS data standard is developed through working groups with the different business lines. The Treasury DAIMS schema team manages change requests from different sources, including the DATA Act Program Management Office (PMO), the USAspending.gov website team, agencies, Office of Management and Budget (OMB), and the public. The consensus building process includes working group meetings, feedback periods, and regular meetings with agency representatives. All changes to normative documents are reviewed to ensure changes meet the data standardization and compliance requirements.

5. Conclusion

The DAIMS is an important data standard that ensures the reporting of reliable, consistent federal spending data for public use. DAIMS will be further refined to promote broader use within individual federal agencies for internal reporting, and within the state and local governments where terminology and data element structures may differ. DAIMS will also evolve to support additional use cases to round-out financial reporting, such as grants management and performance reporting. To realize its value, DAIMS should be leveraged by future data standardization efforts in the covered domain and referenced by other data standards as applicable.