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## ***Part II — Information Architecture***

### ***Chapter 2 — Data Management Strategy***

#### **Introduction**

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This chapter discusses the Medicaid IT Architecture's (MITA's) Data Management Strategy (DMS) to provide seamless interoperability across the Medicaid enterprise. Increasingly, State Medicaid enterprises need to exchange and share information internally and with other State agencies, organizations, and enterprises. This is especially true as Medicaid works toward its vision of developing integrated systems that effectively communicate to achieve common Medicaid goals.

Current Medicaid systems were built to satisfy the Medicaid organizations' own and Federal business needs. They were not designed to interoperate seamlessly with other systems within the enterprise, let alone with external systems and applications. States need to find a way to evolve current data and information activities so that they include data sharing, seamless integration, reuse, and semantic operability at the enterprise level, while maintaining data quality and integrity. The MITA DMS will coordinate this effort for State Medicaid enterprises, with the goal of getting the right data to the right people at the right time.

This chapter answers the following questions:

- What is the MITA Data Management Strategy?
- What is MITA's approach to data management?
- What are the benefits of using the MITA Data Management Strategy?
- What is the scope of the MITA Data Management Strategy?
- What are the parts of the MITA Data Management Strategy?
- How do States use the MITA Data Management Strategy?

#### ***Purpose***

The purpose of the MITA DMS is to document the processes, techniques, and products needed by a Medicaid enterprise to achieve optimal sharing of Medicaid enterprise information.

#### ***Scope***

The MITA DMS only addresses the common Medicaid information of a Medicaid enterprise at the logical level. States are required to extend the MITA DMS for State-unique data and all processes, techniques, and products required by the physical data structures.

## What Is the MITA Data Management Strategy?

The DMS provides a structure that facilitates the development of information/data that can be effectively shared across a State's Medicaid enterprise boundaries to improve mission performance. The implementation of the MITA DMS will provide the techniques, processes, and products to meet Medicaid's need for timely, accurate information. It will also provide an impetus for State Medicaid enterprises to better understand their data and how it fits in the total pool of Medicaid information. The DMS addresses fundamental aspects (e.g., syntax and semantic operability) to enable information-sharing opportunities and to position State Medicaid agencies to operate in an environment of global information.

The key areas of the DMS (i.e., Data Governance, Data Architecture, and Data Sharing Architecture) will be discussed later in this chapter.

Data access mechanisms and services are addressed in the MITA Technical Architecture. Physical characteristics of the mechanisms used for data sharing are the responsibility of the States and are not addressed by MITA.

## Practical Considerations in Data Management

There are several practical considerations in the DMS:

- Data is important only to the extent that it provides business value.
- The data will never completely “match” or be fully standardized for several reasons:
  - Everyone is at a different starting point.
  - Standards vary according to the business purpose of the data and must, in order to provide business value, continue to do so.
  - The world is constantly changing, and the data that describes it must also change. There will always be a lag between the need and use of new data and the universal adoption of standards.
- MITA is interested in data in motion, data at rest, and data in process. Data standards, exchange standards, and technology standards are important for data in motion. Data at rest is of interest because it could become data in motion to fulfill a business need. Data in process is only of interest when it involves shared data; other data in process is of no interest to MITA because it is in the “black box” of the implementation. Data will be matched at three levels of accuracy and alignment:
  - **Syntactic and Semantic Match.** Consistency and standardization via community collaboration, versioning, and balloting will be enabled through the MITA environment and change-management process and through MITA participation in key strategy data initiatives (e.g., submission/proposals to groups like HL7).

- **Close and Able-to-Translate and -Tolerate Differences.** The data is similar to, but not exactly the same as, data contained in common models (e.g., different lengths and slightly different descriptions, such as legal name versus maiden name versus first name or last name). This will require mechanisms for describing differences and performing default translations.
- **Likely Related Elements.** Idiosyncratic data does not match common models, but it is nevertheless useful (provided the exact nature of the data is understood). This will require consistent definitions and discovery mechanisms.

### **Guiding Principles**

There are many guiding principles for developing MITA solutions:

- MITA solutions must accommodate data that is changing, which has resulted in the following:
  - MITA solutions are able to accommodate data that does not match.
  - There are standard ways to describe data to support.
  - Tools can process ambiguous data.
  - Translators can adapt nonstandard data.
- MITA solutions must be business driven:
  - Priority and extent of standardization is driven by business need.
  - Incremental business value must be measured and evaluated to drive investment planning and standards negotiations.
- Security and privacy must be integrated with data design and deployment.

### **Supporting MITA Mission and Goals**

The DMS will support the MITA vision of developing seamless and integrated systems that effectively communicate to achieve common Medicaid goals through interoperability and common standards. The DMS will support the MITA mission in many ways:

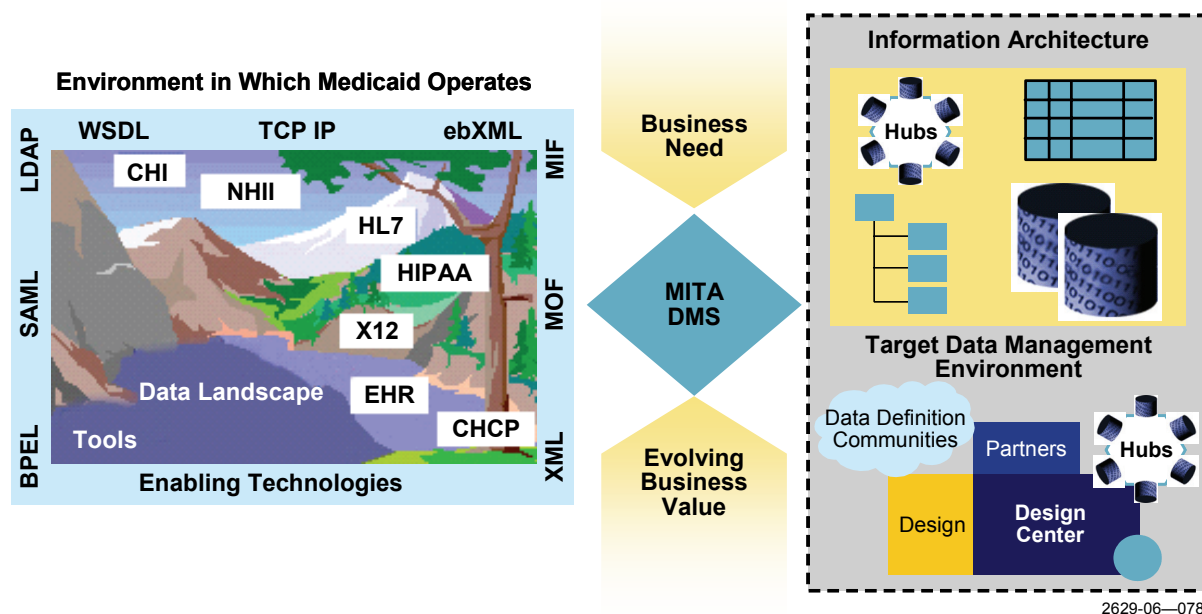
- Promote interoperability and common standards by developing technical solution sets and promoting alignment with national standards organizations.
- Promote an environment that supports flexibility, adaptability, and rapid response to changes in programs and technology.
- Identify needed utility services that will read data descriptions to discover data that is available for sharing.
- Promote an enterprise view that supports enabling technologies that are aligned with Medicaid business processes and technologies.
- Take a business-value approach to standardizing data in cases where it will provide the most value, while allowing flexibility to meet unique business needs.

- Support the architecture review board by providing a mechanism to evaluate change requests and makes recommendations.
- Provide data that is timely, accurate, usable, and easily accessible in order to support analysis and decision making for healthcare management and program administration.
- Create an environment that facilitates data sharing through the following:
  - Promotion of new standards development
  - Infusion of new technology
  - Designs for a national infrastructure
- Provide performance measurement for accountability and planning.
- Develop mechanisms for measuring the effectiveness of data sharing to determine the business value of further standardization.
- Coordinate with public health and other partners and integrate health outcomes within the Medicaid community.
- Monitor and participate in national initiatives to align with data standards in other communities (e.g., public health).

## What Is MITA's Approach to Data Management?

The MITA DMS will provide mechanisms to monitor and influence the *environment in which Medicaid operates* with respect to both the data landscape and the enabling technologies. *Data landscape* refers to the broad range of national initiatives, standards bodies, and other organizations engaged in defining or influencing standards (e.g., the National Medicaid Electronic Data Interchange [EDI] Health Insurance Portability and Accountability Act [HIPAA] [NMEH] working groups). *Enabling technologies* means open standards, protocols, middleware, and other mature or emerging technologies that facilitate data sharing. This is the environment in which MITA must interoperate to be successful (**Figure 2-1**).

The MITA DMS will prioritize activities based on business needs and measure the resulting business value. Business value will continually evolve as standards and data sharing solutions become more refined. Refining standards does not necessarily mean increasing the number of standards. Rather, standards should be applied where they will provide evolving business value.



**Figure 2-1. MITA Data Management Approach**

The MITA DMS will identify enabling technologies and specify interoperable designs for data exchange and the associated processes and procedures. The resulting Information Architecture (IA) will lead to the development of the target data management environment. It is unclear whether the target data management environment will be developed by a single organization or through the efforts of many organizations, each contributing according to standard specifications. Adequate documentation of the IA will make either development approach feasible.

Key elements that will be addressed by the MITA DMS are as follows:

- Data hub architecture
  - Data topics
  - Subject index
  - Topic map
- Metadata management specifications
  - Common metadata model (as an example)
  - Metadata for external shared data
  - Metadata for Medicaid shared data
  - Specifications for description of State-specific and idiosyncratic data
- Models for data sharing
- Information maturity model and assessment process
- Virtual access mechanisms

- Standards and technology maturity aspects that address key data management and data-sharing concerns

## What Are the Benefits of Using the MITA Data Management Strategy?

The complexity and stovepipe nature of the current implementation of State Medicaid enterprises have resulted in a lack of interoperability. This problem will grow exponentially as Medicaid begins to make use of electronic health records and share data among enterprises and other groups as part of normal business processes. Guidance is needed by the States and vendors to aid in this transition, and the MITA DMS is designed to provide that guidance.

The MITA DMS provides State Medicaid agencies with a strategy for combining tools, procedures, and processes to handle future Medicaid enterprise data needs.

The MITA DMS will provide the following benefits:

- Align State information-related activities and provide a roadmap to use in planning
- Provide guidance for making decisions associated with information, data sharing, and seamless interoperability
- Reduce cost by aligning and focusing information-related activities
- Provide an information structure that enables Medicaid enterprises to share data in formats with a common definition resulting in consistent application across the enterprise
- Reduce risk to system development by reducing custom solutions and promoting interoperability and data sharing
- Increase overall quality of a State Medicaid enterprise
- Provide a common set of processes, tools, and solutions for the information needs of Medicaid
- Allow individual States to benefit from the information assets of other States

## What Is the Scope of the MITA Data Management Strategy?

MITA Framework 2.0 only provides an overview of the DMS. DMS details will be developed in future versions of the Framework. Future versions will also contain the procedures for developing MITA-specific data standards, governance procedures for MITA data standards, repository information, and business cases. The following points describe the scope of the MITA DMS:

- It is location- and organization-neutral. States will be responsible for allocation strategy to their individual organization and locations.

- It will not address State-specific data and messages. Each State is responsible for supplementing the MITA DMS with the information needed for its unique data messages.
- A data strategy associated with the physical data model, databases, and data files will not be part of MITA. Individual States are responsible for developing this strategy.

## What Are the Parts of the MITA Data Management Strategy?

The MITA DMS will define an enterprisewide data strategy that addresses the business flow of data across the Medicaid enterprise. It will involve architecture, modeling, standards, metadata, management, interoperability, security and privacy, access methods, quality, and performance measurement. The three key parts of the MITA DMS are as follows:

- **Data Governance** defines the governance processes for making enterprise-wide decisions regarding MITA's information holdings. It provides the capability to determine/assign ownership, determine data standard adoption processes, address data integrity, define processes for business-process development, and establish a mechanism for arbitrating differences.
- **Data Architecture** establishes standard data-management procedures for the MITA data models. Specific guidelines will be developed regarding MITA data documentation, data-sharing development and use applicable to both structured and unstructured data, and the management of metadata of all types. These guidelines will ensure that data entities and attributes, data models, and relationships are sufficiently defined to convey the overall meaning and use of Medicaid data and information. Finally, the data architecture assigns accountability for data at the MITA level.
- **Data-Sharing Architecture** describes technology considerations for Medicaid enterprises to participate in information-sharing communities. Based on business requirements, MITA (with support from State- and vendor-supported workgroups) will define the data and information exchange formats. The Medicaid community will define or adopt standard data definitions and data-sharing schemas. It is a goal that a centralized dictionary and directory will maintain this information for general use. Each State will be responsible for knowing and understanding its environment (e.g., data, applications, and infrastructure) in order to map its data to information-sharing requirements. The data-sharing architecture also addresses the conceptual and logical mechanisms used for data sharing (i.e., data hubs, repositories, and registries). The data-sharing architecture will also address data semantics, data harmonization strategies, shared-data ownership, security and privacy implications of shared data, and the quality of shared data.

Actual data-access mechanisms and services are addressed in the MITA Technical Architecture. Physical characteristics of the mechanisms used for data sharing are the responsibility of the States and are not addressed by MITA.

## How Do States Use the MITA Data Management Strategy?

- States and vendors will be able to use the DMS along with the MITA Maturity Model (MMM) and Business Capability Matrix (BCM) for Medicaid enterprise planning.
- States will need to extend the DMS to include any State-specific data.
- States will need to develop the DMS associated with the physical datasets and databases created during implementation of components of the Medicaid enterprise.
- States will need to identify business processes in their environment that do not use data standards and consider which data conversions will be needed.
- For a State's IT procurement, the processes and strategies of the DMS should be listed in the RFP and be part of the evaluation criteria.
- States are responsible for allocating the DMS to their organization.

## Conclusion

The MITA DMS is critical to the successful transformation and evolution of Medicaid enterprises. The MITA DMS will become a tool to enable States to transition their current information architecture to a MITA IA, a move that will ultimately result in lower cost, improved outcomes, and reduced errors for State Medicaid enterprises. The MITA DMS will also provide a roadmap for States to use as they transition their enterprise from one level of the MMM to the next.