Part II – INFORMATION ARCHITECTURE
Chapter 6 – INFORMATION CAPABILITY MATRIX

CMS
CENTERS for MEDICARE & MEDICAID SERVICES

MITA
Medicaid Information Technology Architecture

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Introduction

This chapter presents the Medicaid IT Architecture (MITA) Information Capability Matrix (ICM) and explains its role in the MITA Framework and how States and vendors use it to design and implement better State Medicaid Enterprise Systems. The combination of the ICM, the Information Architecture (IA), and the State Self-Assessment (SS-A) Companion Guide Information Architecture Profile provide a mechanism for the State Medicaid Agency (SMA) to measure the maturity level of its State Medicaid Enterprise and to indicate how its IA will mature along a predictable path.

The ICM refers to the composite of all capabilities for all the business areas arranged in a single table along with a subset of 1 to 5 capabilities associated to the four (4) IA components.

The topics covered in this chapter include:

- Information Capability Matrix
- Evolution of the Information Capability Matrix
- Using the Information Capability Matrix

Purpose

The purpose of the ICM is to describe the boundaries and behavior of each MITA business area in the context of the five (5) levels of the MITA Maturity Model (MMM) as described in Part I, Chapter 3, Maturity Model, and in the MITA principles, goals, and objectives (Front Matter, Chapter 6, Introduction to the MITA Framework). The ICM is one of the principal building blocks of the MITA Framework. Business and Technical Services use information enabled by the IA capabilities (see Part III, Chapter 4, Technical Services). It is important for readers to see the ICM as the middle link between the Business Architecture (BA) and the Technical Architecture (TA). The ICM supports enabling technologies that align with Medicaid business processes and technologies.

The ICM relates in purpose and format to the Business Capability Matrix (BCM) and the Technical Capability Matrix (TCM). The MITA Framework introduces the BCM in Part I, Chapter 5, Business Capability Matrix, and provides detailed business capability statements in Part I, Appendix D, Business Capability Matrix Details, for each of the MITA business processes. Part III, Chapter 7, Technical Capability Matrix, discusses technical capabilities. Technical capabilities are enablers for business and information capabilities.

Scope

The ICM defines the information capabilities used in a business process and informs the identification of technical capabilities. The ICM includes four (4) primary components: Data

Management Strategy (DMS), Conceptual Data Model (CDM), Logical Data Model (LDM), and Data Standards.

The ICM discusses the data identified in the business process that enables technical capabilities. The BCM discusses the business capabilities associated with a business process and the TCM discusses technical capabilities that enable business capabilities. There is no one-to-one match among business, information, and technical capabilities. This chapter focuses exclusively on information capabilities as expressed in the ICM.

Information Capability Matrix

The ICM describes an IA component at a specific level of MITA maturity. The MMM defines five (5) levels of maturity showing how the Medicaid Enterprise will evolve over time. The IA capabilities result from applying the MMM's definitions of maturity to each business process to derive specific capabilities for each business area, as shown in **Figure 6-1**.

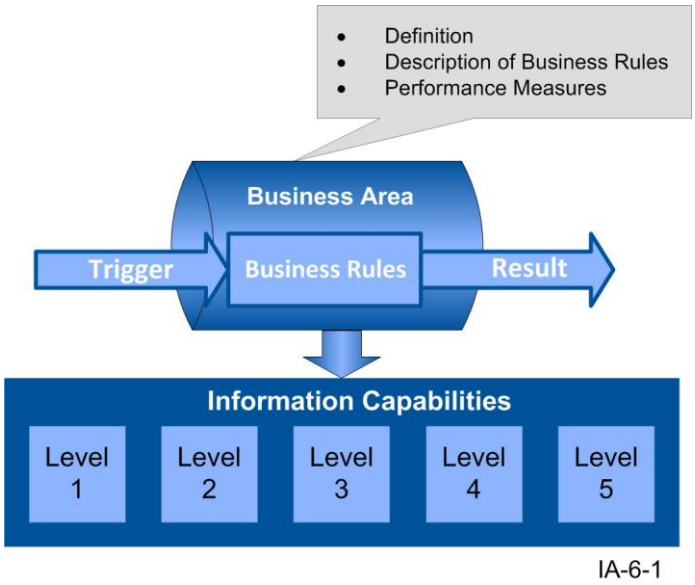

Figure 6-1. Each IA Process Has up to Five Capabilities

High-level capability descriptions:

1. **Level 1 Capabilities** – Are predominantly manually intensive, IA components that do not take advantage of current industry standards.
2. **Level 2 Capabilities** – Are a mix of manually intensive components and electronic transactions or automated functionality internal to the SMA.
3. **Level 3 Capabilities** – Adoption of a governance process, a CDM, a LDM, enterprise modeling, the MITA Framework, industry standards, and other nationally recognized

standards for intrastate exchange of information. Partners include one or more state agencies.

4. **Level 4 Capabilities** – Include interoperability amongst all appropriate state agencies, regional partners, regional Health Insurance Exchange (HIX), regional Health Information Exchange (HIE), and other external regional health care stakeholders.
5. **Level 5 Capabilities** – Include interoperability amongst all appropriate state agencies, regional partners, federal agencies, national Health Insurance Exchange (HIX), national Health Information Exchange (HIE), and other national external health care stakeholders.

The description of an IA component is neutral regarding level of maturity, i.e., it describes a series of actions and an outcome without reference to time, efficiency, impact, or other qualities of the component. The ICM, by contrast, describes how the components change at different points in advancement toward maturity, e.g., movement from local code sets (Level 1) to national code sets within the SMA (Level 2) to national code sets within all state agencies (Level 3) to the use of clinical data (Level 4) to the use of nationally adopted standards (Level 5); whereas the business capability statements and the qualities differentiate between manual and automated steps.

A capability is the competence of an individual, organization, or system to perform a function or process. There are three types of capabilities: business, information, and technical. The levels of maturity show progress from As-Is business capabilities (Levels 1 and 2) to To-Be business and information capabilities (Levels 3 through 5) that reflect the vision of the Medicaid Enterprise. Each higher level brings more operational effectiveness to the Medicaid Enterprise than the prior level. Technical capabilities are enablers of business and information capabilities.

The ICM displays capabilities grouped by IA component (See **Table 6-1**). Part II, Chapters 2-5, discuss IA components in detail, below is a brief description.

- **DMS** – Provides a structure that facilitates the development of information/data, effectively shared across a Medicaid Enterprise to improve mission performance.
- **CDM** – Represents the overall conceptual structure of the data, providing a visual representation of the data needed to run an enterprise or business activity.
- **LDM** – Identifies all of the logical data elements that are in motion in the system or shared within the Medicaid Enterprise.
- **Data Standards** – Discusses the available data standards, the benefits of data standards, and using them.

Table 6-1. MITA ICM

Business Area Title					
	Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
Data Management Strategy (DMS)					
Does business area have governance of data management?	No data governance implemented.	Implementation of internal policy and procedures to promote data governance, data stewards, data owners, and data policy.	Adoption of governance process and structure to promote trusted data governance, data stewards, data owners, data policy, and controls redundancy within intrastate.	Participation in governance, stewardship, and management process with regional agencies to promote sharing of Medicaid resources.	Participation in governance, stewardship, and management process with Centers for Medicare & Medicaid Services (CMS) and other national agencies and groups to promote sharing of Medicaid resources.
Does business area have common data architecture?	No standards for data architecture development.	Implementation of internal policy and procedures to promote data documentation, development, and management where the SMA defines data entities, attributes, data models, and relationships sufficiently to convey the overall meaning and use of Medicaid data and information.	Adoption of intrastate metadata repository where the SMA defines the data entities, attributes, data models, and relationships sufficiently to convey the overall meaning and use of Medicaid data and information.	Adoption of a regional metadata repository where the SMA defines the data entities, attributes, data models, and relationships sufficiently to convey the overall meaning and use of Medicaid data and information.	Adoption of a national centralized metadata repository where the SMA defines the data entities, attributes, data models, and relationships sufficiently to convey the overall meaning and use of Medicaid data and information.

Business Area Title					
	Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
Does each business area use Enterprise Modeling?	No enterprise modeling exists.	Implementation of Medicaid internal policy and procedures to promote enterprise modeling.	Adoption of intrastate enterprise modeling to promote standardized data across data source systems and third-party resources to decrease resource expenditure and increase enterprise knowledge.	Adoption of regional enterprise modeling to promote standardized data across data source systems and third-party resources to decrease resource expenditure and increase enterprise knowledge.	Adoption of national enterprise modeling to promote standardized data across data source systems and third-party resources to decrease resource expenditure and increase enterprise.
Does business area utilize data sharing architectures?	No sharing of data.	Development of Medicaid centralized data- and information-exchange formats.	Adoption of statewide standard data definitions, data semantics, and harmonization strategies.	Adoption of regional mechanisms used for data sharing (i.e., data hubs, repositories, and registries).	Adoption of national mechanisms used for data sharing (i.e., data hubs, repositories, and registries).
Conceptual Data Model (CDM)					
Does business area have CDMs?	No CDM developed.	Adoption of diagrams or spreadsheets that depict the business area high-level data and general relationships within the agency.	Adoption of a CDM that depicts the business area high-level data and general relationships for intrastate exchange.	Adoption of a CDM that depicts the business area high-level data and general relationships with regional exchange including clinical information.	Adoption of a CDM that depicts the business area high-level data and general relationships with national exchanges.
Logical Data Model (LDM)					

Business Area Title					
	Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
Does business area have LDMs?	No LDM developed.	Identification of data classes and attributes relationships, data standards, and code sets within the agency.	LDM identifies the data classes, attributes, relationships, standards, and code sets for intrastate exchange.	LDM identifies data classes, attributes, relationships, standards, and code sets for regional exchange including clinical information.	LDM identifies data classes, attributes, relationships, standards, and code sets for national exchange.
Data Standards					
Does business area use structure and vocabulary data standards to support current and emerging health data standards?	The agency uses non-standard structure and vocabulary data standards.	SMA implements internal structure and vocabulary data standards used for performance monitoring, management reporting, and analysis. SMA implements state-specific and Health Insurance Portability and Accountability Act of 1996 (HIPAA) data standards.	SMA standardizes structure and vocabulary data for automated electronic intrastate interchanges and interoperability. SMA implements MITA Framework, industry standards, and other nationally recognized standards for intrastate exchange of information.	SMA standardizes data for automated electronic regional interchanges and interoperability. SMA implements the MITA Framework, industry standards, and other nationally recognized standards for clinical and interstate exchange of information.	SMA standardizes data for automated electronic national interchanges and interoperability. SMA implements the MITA Framework, industry standards, and other nationally recognized standards for national exchange of information.

Evolution of the Information Capability Matrix

The Medicaid Enterprise is continually evolving along with new legislation and technology. Even as State Medicaid Enterprises evolve, increased functionality, tighter performance standards, and expected health outcomes will continue to change business operations and the technology used to conduct business. States do not have to achieve the higher levels of capability all at once. The MITA Framework ICM encourages growth and transformation by illustrating the benefits of improving state operations and provides tools to help States achieve that transformation.

Using the Information Capability Matrix

The ICM is a key tool for conducting the SS-A. The IA SS-A activity defines current State Medicaid Enterprise information capabilities and develops the targeted future of the enterprise with defined capabilities and performance standards. The SMA will complete the ICM and develop the MITA Roadmap for continuous improvement, targeting increased maturity levels.