
Part I — Business Architecture

Chapter 3 — Maturity Model

Introduction



This chapter introduces the maturity model used for the Medicaid IT Architecture (MITA) and explains both its role in the MITA Framework and its use by the MITA team, Centers for Medicare & Medicaid Services (CMS), States, and vendors.

The objective of this chapter is to answer the following questions:

- What is a maturity model?
- What is the MITA Maturity Model?
- How are the MMM levels of maturity defined?
- How is the MMM used in the MITA Framework?

Purpose

The purpose of the MITA Maturity Model (MMM) is to serve as a reference model for grounding the definitions of *business capabilities*, as described in Part I Chapter 5, and *technical capabilities*, as described in Part III Chapter 5. The MMM establishes boundaries and measures to be used in determining whether a business capability is correctly and sufficiently defined.

Scope

The MMM applies to the State Medicaid enterprise only. The Medicaid enterprise encompasses all administrative services for which CMS supplies Federal matching funds, including interfaces with stakeholders. States can choose to encourage their data exchange partners (e.g., providers, managed care organizations, benefit managers, other agencies, and other payers) to follow these guidelines.

Some definitions associated with Maturity Levels 4 and 5 are dependent on regulations that do not currently exist or technology that is envisioned but not yet proven. It is a constant principle of the MITA Framework that all its contents are subject to change. MITA is always a work in progress.

What Is a Maturity Model?

A maturity model measures the improvement and transformation of a business across the two dimensions — time¹ and space. **Figure 3-1** illustrates the time and space dimensions by depicting progressive improvements in the beneficiary enrollment process over a 10+ year period. The time dimension marks progress from the present to a realistic future time. The space dimension shows how the business looks at present and what its capabilities likely will be as it matures.

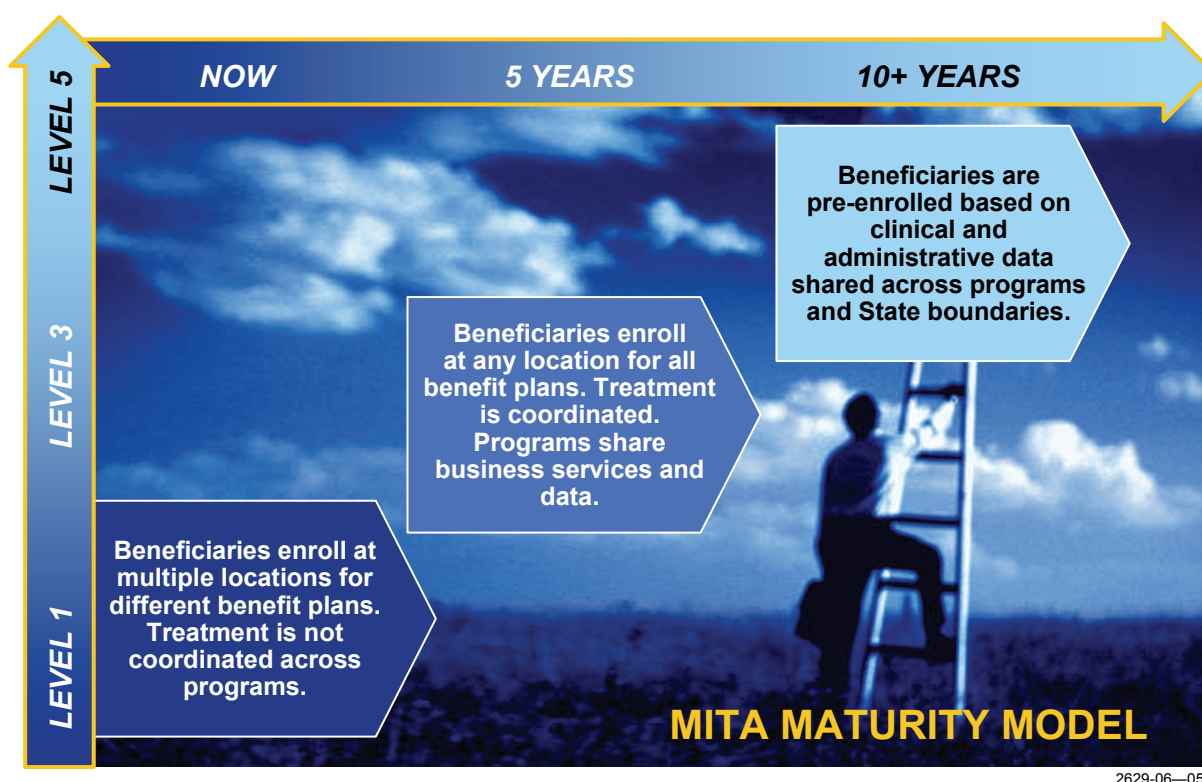


Figure 3-1. The MMM Shows Implement in Beneficiary Enrollment Over Time and Space

The maturity models used for planning business and technical transformations in contemporary industry (e.g., how U.S. businesses use capability maturity models [CMMs]² to capture planned improvements) to establish goals for achieving and measuring progress typically focus on a

¹ In the MMM, time is loosely associated with five periods, ranging from the present to 10+ years into the future. Although predictions are well grounded at the 5-year marker, they depend more on new enablers in the future, which makes the time estimates less certain beyond the midpoint.

² The Software Engineering Institute (SEI) developed the CMM primarily for IT organizations.

single enterprise (e.g., a single State Medicaid program). The MITA Framework, by contrast, must accommodate 51 individual Medicaid enterprises.

What Is the MITA Maturity Model?

The MITA Framework requires a maturity model to define boundaries and provide guidelines for the transformation of the Medicaid Enterprise from its As-Is level of maturity to progressively higher levels of performance. Prior to the current work on MITA, such a model did not exist. Therefore, the MITA team has adapted industry standards to create the MMM, drawing upon the Concept of Operations (Part I Chapter 2) for the definition of the targeted end-state and the To-Be vision for Medicaid agencies. The MMM provides guidelines for creating up to five levels of business capabilities for each Medicaid business process. Part I Chapter 1, Business Architecture Introduction, discusses how the pieces fit together at a high level.

Time Dimension

The MMM uses five levels of maturity in its timeline for the following reasons:

- The Medicaid enterprise is a complex system with many moving parts. The MITA Framework needs a maturity model that reflects the breadth and depth of the Medicaid enterprise business processes.
- A timeline establishes a reasonable course of measurable progression. Ten steps over 10+ years creates too many checkpoints, and two steps in 10+ years produces too big a leap (i.e., the gap between Level 1 and Level 5 maturity would be too wide to achieve in a single leap). Five intervals, or levels, mark appropriate targets for progress that States can understand, plan for, implement, and measure.
- A 10+ year maturity plan seems appropriate given our understanding of current stakeholder needs and vision and the progress of development of the technical, policy, and regulatory enablers necessary to complete the transformation.

For the reasons given above, the MMM projects a 10+ year timeline. The assumptions for the timeline include dependencies on technology advances, State and Federal policies, and enactment of legislation that would support the improvement of State Medicaid programs (see Part I Chapter 2, Concept of Operations, for examples).

The MITA team can be reasonably certain about predicting the next 5 years, but less so about the next 10+ years because of dependencies on the adoption of enablers. Recognizing the many obstacles to achieving Medicaid goals, the MITA Framework proposes a conservative position of 10+ years. **Figure 3-2** illustrates the planned progression for State Medicaid agencies over the next 10+ years.



Figure 3-2. The MMM 10+ Year Timeline

Space Dimension (Levels of Maturity)

The MMM predicts a transformation of the Medicaid enterprise from a current level of capability to some future state over the next 10+ years. The MMM provides a narrative description of the business capabilities of a Medicaid enterprise to describe levels of maturity at defined points in time. Each level has a definition that distinguishes it from other levels.

The following section defines the five levels of maturity by providing baseline definitions, additional distinguishing qualities, and examples of applying these definitions.

How Are the MMM Levels of Maturity Defined?

Table 3-1 generally describes the Medicaid program as it moves from one maturity level to another.

Table 3-1. State Medicaid Enterprise Levels of Maturity

Definition of State Medicaid Levels of Maturity				
Level 1	Level 2	Level 3	Level 4	Level 5
Agency focuses on meeting compliance thresholds for State and Federal regulations, primarily targeting accurate enrollment of program eligibles and timely and accurate payment of claims for appropriate services.	Agency focuses on cost management and improving quality of and access to care within structures designed to manage costs (e.g., managed care, catastrophic care management, and disease management). Focus on managing costs leads to program innovations.	Agency focuses on adopting national standards, collaborating with other agencies in developing reusable business processes, and promoting one-stop-shop solutions for providers and consumers. Agency encourages intrastate data exchange.	Agency benefits from widespread and secure access to clinical data and focuses on improvement of healthcare outcomes, empowering beneficiaries and provider stakeholders, measuring objectives quantitatively, and ensuring overall program improvement.	Agency focuses on fine tuning and optimizing program management, planning and evaluation since it has benefited from national (and international) interoperability and previously noted improvements that maximize automation of routine operations.

In Table 3-1, Levels 1 and 2 are considered to be contemporary. Level 3 is the near-term target of 5 years. Levels 4 and 5 depend on enablers expected within the next 6 – 10+ years. The levels

show how the agency strives to improve over time in response to specific imperatives. The general definition of the five levels of maturity establishes boundaries for each level. For example, Level 4 can be achieved only if the business process uses clinical data to improve health outcomes and operational efficiencies. The MMM provides a structure that shows the future (i.e., the To-Be) vision and the intermediary steps (or levels) the agency must reach to achieve its objectives. The MMM shows a pathway of continuous business improvement toward a realistic future state. Each higher level of maturity incorporates the best practices of the level below and, more importantly, introduces new higher level capabilities.

Probably no State Medicaid agency is, as a whole, at a single level of maturity, but rather demonstrates a blend of levels. Some business areas may be more mature than others.

To further explain the differences between the levels of maturity, the MMM includes a set of measurable *qualities* to help distinguish performance at one level from performance at another. Examples of these qualities are listed below.

Qualities of Each Level of Maturity

- **Timeliness of Business Process.** Time lapse between the agency's initiation of a business process and attaining the desired result (e.g., length of time to enroll a provider, assign a member, pay for a service, respond to an inquiry, make a change, or report on outcomes)
- **Data Accuracy and Accessibility.** Ease of access to data that the business process requires and the timeliness and accuracy of data used by the business process
- **Efficiency; Ease of Performance.** Level of effort necessary to perform the business process given current resources
- **Cost Effectiveness.** Ratio of the amount of effort and cost to outcome
- **Quality of Process Results.** Demonstrable benefits from using the business process
- **Utility or Value to Stakeholders.** Impact of the business process on individual beneficiaries, providers, and Medicaid staff

Qualities defined for each level should differentiate clearly between the levels and show a realistic progression toward improvement. **Table 3-2** illustrates the quality of timeliness of the business process.

To develop the MMM, the MITA team took a general description of the levels and definition of the qualities and applied them first to the Medicaid enterprise and the MITA mission, goals, and objectives and next to the business processes referenced in the Business Process Model (BPM). The next section gives examples of the impact of the MMM on mission, goals, and objectives.

Table 3-2. The MMM and the Timeliness of the Business Process

Quality: Timeliness of Business Process				
Level 1	Level 2	Level 3	Level 4	Level 5
Business process meets threshold or mandated requirements for timeliness (e.g., the processes achieve results within the time specified by law, regulation, or policy).	Business process improves because of Web portal, EDI, or other forms of automation. Business processes that save money are given priority. Timeliness exceeds legal requirements.	Timeliness improves via interagency collaboration, use of data sharing standards, and State/regional information exchange.	Clinical data is available in real time. Processes that use clinical data result in immediate action, response, and outcomes.	Processes are further improved through interoperable connectivity with other States and Federal agencies. Most business processes are executed at the point of service. Results are as close to immediate as can be envisioned at this time.

Maturity Levels Applied to Medicaid Mission and Goals³

Part I Chapter 2, Concept of Operations, introduced the Medicaid mission and goals — a statement in business terms of the long-range vision of the Medicaid program. Medicaid mission and goals are described for each level of maturity in Part I Appendix B, Maturity Model Details. **Table 3-3** illustrates one example, the Medicaid goal to improve healthcare outcomes for Medicaid beneficiaries. These descriptions illustrate improvements envisioned for each higher level. Medicaid mission and goals have been shaped by “visioning” sessions conducted with a number of State agencies and by recent national initiatives such as the National Health Information Infrastructure (NHII).

Table 3-3. The MMM and the Improvement of Health Outcomes

Improvement of Health Outcomes Seen at Different Levels of Maturity					
Medicaid Goal	Level 1	Level 2	Level 3	Level 4	Level 5
Improve Healthcare Outcomes for Medicaid Beneficiaries	Agency focuses on payment of provider claims to encourage provider participation and, in the process, to increase access to care.	Agency achieves improved healthcare outcomes from managing costs (e.g., through managed care and waiver programs).	Agency adopts national data standards, collaborates with other agencies, and shares business processes, which builds a better base for comparing outcomes.	Agency and other stakeholders can access clinical data, which greatly improves analysis of healthcare outcomes.	Agency can access data nationally to compare outcomes across a broad spectrum of other agencies and States.

Levels of maturity do not suggest “good” or “bad” values, though MITA encourages States to achieve higher levels for some or all business processes.

³ See Part I Chapter 2, Concept of Operations, for discussion of Medicaid and MITA goals and objectives.

MITA Goals and Objectives

The MITA goals and objectives support the Medicaid mission and goals. The Medicaid mission draws on a variety of sources, including policy making, strategic planning, and legislation. MITA is one of the key supports for achieving the Medicaid mission. MITA has its own stated objectives and goals that align with the Medicaid mission and with Federal initiatives such as the Federal Health Architecture (FHA) and the NHII. The Medicaid and MITA goals and objectives are built into the MITA Framework. The realization of these goals is described at each level of maturity. This is the capstone of the MMM.

Table 3-4 shows how progressive levels of maturity improve a State agency’s ability to meet the MITA goal to “promote an environment which supports flexibility and adaptability and rapid response to changes in programs and technologies.”⁴

Table 3-4. The MMM and Agency Adaptations to Changes

Agencies Mature in their Ability to Adapt to Changes in Program and Technology				
Level 1	Level 2	Level 3	Level 4	Level 5
Agency complies with mandatory changes that are costly and time consuming to implement.	Agency introduces elements of flexibility in program design driven by efforts to manage costs and implement new programs quickly.	Agency increases flexibility and adaptability by implementing shared business practices, adopting national standards, and increasing collaboration both among intrastate agencies and through State/regional information exchange.	Agency benefits from immediate access to clinical data, which speeds response time and improves accuracy of results in critical business processes.	Agency improves flexibility and adaptability capabilities through national interoperability, collaborates on responses to changes, and shares solutions intrastate and interstate.

Table 3-5 illustrates another MITA goal to “provide data that is timely, accurate, usable, and easily accessible in order to support analysis and decision making for healthcare management and program administration.”

Table 3-5. The MMM and Agency Ability to Provide Data

Agencies Mature in Ability to Provide Timely, Accurate, and Accessible Data				
Level 1	Level 2	Level 3	Level 4	Level 5
Source of data is primarily the claim. Data is accessible via a request/response process. Data is nonstandard and is used primarily to manage operations. Data timeliness may be subject to delays.	Claim and encounter data are accessible to Agency users. Decision support tools improve analysis. Data standards are mandated by HIPAA but are not widely used in internal processes. Data timeliness improves.	Data standards are adopted nationally. Shared repositories of data improve ease of access and accuracy of data used, which yields better business process results.	Access to standardized clinical data through regional data exchange improves the decision-making process. Decisions can be immediate, consistent, and better supported with access to clinical evidence.	Data exchange on a national scale optimizes agency’s decision-making capabilities.

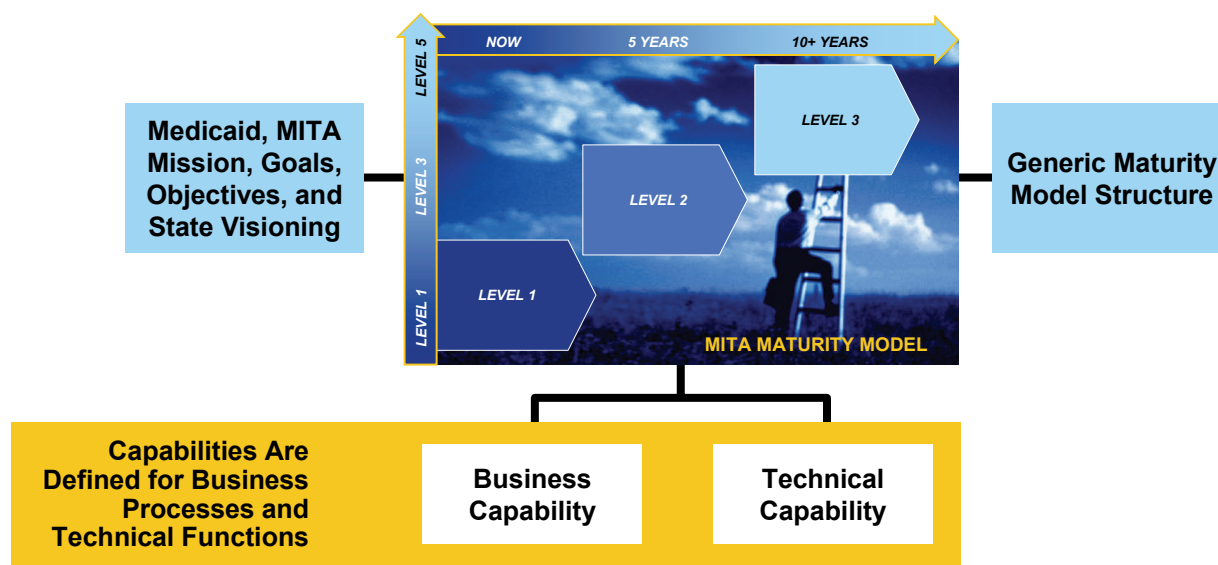
⁴ See Part I Chapter 2, Concept of Operations, for discussion of Medicaid and MITA goals and objectives.

How Is the MMM Used in the MITA Framework?

The MMM shows how the Medicaid enterprise evolves over time. It applies the general definition of a maturity model to the complexities of the Medicaid program as manifested in 51 jurisdictions.

The MMM applies to the three parts of MITA: the Business, Information, and Technical Architectures. **Figure 3-3** shows the relationship of the MMM to the MITA transformation path. Business capabilities are associated with levels of maturity. Technical capabilities, as enablers of the business capabilities, are identified with corresponding levels.

Technology is an important enabler. Others enablers include advances in supportive legislation, policy, and funding streams. Additional drivers include changes in demographics, climatic disasters, and pandemics.



2629-06—073

Figure 3-3. The MMM: A Direction for the MITA Transformation Path

This chapter presents the MMM and shows how it is used specifically in building business capabilities. Companion technical capabilities are discussed in Part III Chapter 5, Technical Capability Matrix.

The BA describes the progress of business capabilities for each business process. Business capabilities conform to the definition of levels in the MMM. For example, a Level 3 business

capability adheres to the general description of MMM Level 3 and exhibits the same Level 3 qualities.

The MMM is the keystone for the MITA business and technical capabilities.

Putting It All Together

Figure 3-4 shows the traceability of the State Medicaid transformation, from the beginning of the vision in the Concept of Operations (Part I Chapter 2) to the creation of business capabilities (Part I Chapter 5). The MMM concept describes the levels of maturity along the way. The levels of maturity are applied to each business process to determine its unique levels of capability. Within the context of the BA, States can use the business capabilities to perform a State Self-Assessment (SS-A) and plan their moves to higher levels of capability. The migration path must also include information and technical transformations discussed in Parts II and III of the MITA Framework 2.0.

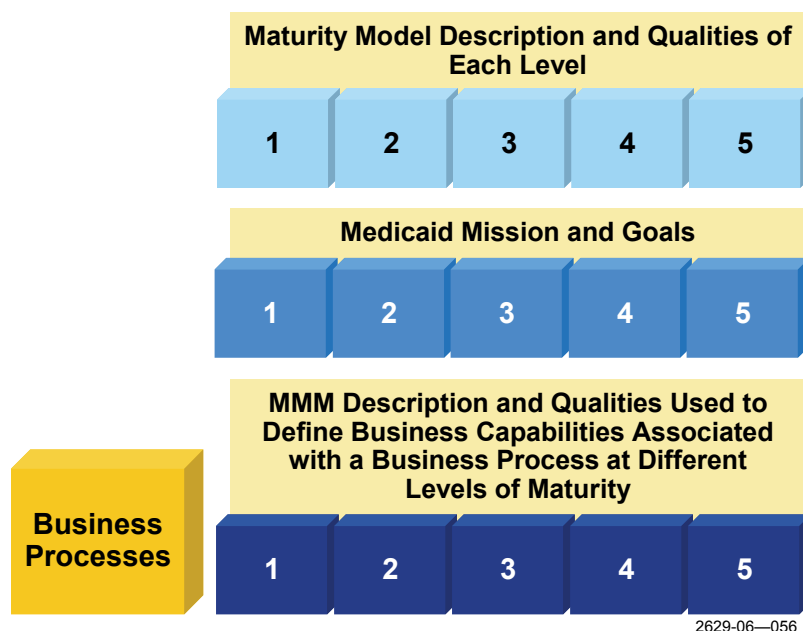


Figure 3-4. The MMM: Translating Medicaid Vision into Business Capabilities

The Traceability Model shown above illustrates the following:

- The MMM provides a framework that consists of a timeline (approximately 10+ years) and five levels of maturity to be achieved as the business matures.
- The MMM describes the Medicaid enterprise in general at the five levels of maturity. The description includes a list of qualities to clarify the intent of each level.

- The MMM applies the levels of maturity to the Medicaid and MITA mission statements and sample goals.
- The MMM serves as a guide for defining business capability statements for each business process at Levels 1 through 5. Business capabilities at each level can be traced to the corresponding MMM maturity level. Business capability statements mirror the MMM general description and detailed qualities. States are asked to use the Business Capability Matrix (a table of business capabilities for each business process at each level where they apply) to perform a SS-A.
- CMS anticipates that over time, States will collaborate with the MITA team to refine their business capabilities. CMS envisions that a MITA repository will retain these products for reuse by other States.

Use of the MITA Maturity Model

The MMM is a reference model used to define business capabilities associated with all MITA business processes. The following summarizes the principal uses of the MMM:

- The MMM provides the framework for a common definition of each level, model qualities for further detail, and a baseline for levels of maturity.
- The MMM is traceable from the mission and goals of Medicaid and MITA to the definition of business capabilities.
- The MMM provides consistency (e.g., by giving all Level 3 business capabilities a common look and feel).
- The MMM serves as a basis for CMS to measure State agencies' performance.
- The MMM serves as a basis for States and vendors to clarify their understanding of business capabilities.

CMS wants States to use the business capabilities (see Part I Chapter 5) in their self-assessment (see Part I Chapter 6), with the MMM serving as a reference model where necessary to explain the level. States are encouraged to participate in refining the business capabilities.

Below, a single business process, Enroll Provider, is used to illustrate the use of the MMM in defining distinct business capabilities associated with up to five levels of maturity. The example illustrates both the definition of the level of maturity and the qualities defined for each level.

Table 3-6 shows the application of the MMM to a specific business process, Enroll Provider. The first row repeats the general description of the maturity level. The second row contains the specific translation of the maturity level to the business capability of Enroll Provider.

Table 3-7 expands the definition of maturity levels to include qualities applicable to the Enroll Provider business process at different levels of maturity.

Table 3-6. The MMM and the Enroll Provider Business Process

The Provider Management Business Area services the provider network through outreach, enrollment, information management, communications, and support services. The Business Objectives for this Business Area are to improve quality of provider network, match needs of the population with availability of appropriate services, satisfy providers and consumers, prevent illness, and improve outcomes.					
Enroll Provider	Level 1	Level 2	Level 3	Level 4	Level 5
Maturity Model General Description	Agency focuses on meeting compliance thresholds required by State and Federal regulations.	Agency focuses on managing costs, which leads to program innovations.	Agency focuses on adopting national standards, collaborating with other States, and promoting one-stop-shop solutions for providers and consumers.	Agency improves healthcare outcomes with widespread and secure access to clinical data.	Agency focuses on optimizing program management, planning, and evaluation, using national interoperability.
Enroll Provider business process receives application data, verifies data, validates credentials, validates National Provider Identifier (NPI), captures demographics, associates with special programs, and determines enrollment status.	Agency provider enrollment staff meets State and Federal requirements for processing applications. Staff receives and processes paper enrollment applications, manually applies agency's business rules, and validates credentials, which creates and helps maintain a provider network that gives access to benefits for eligible members.	Agency provider enrollment staff receives automated applications and applies some business rules automatically. This creates and helps maintain a provider network that complies with State and Federal law and policy; meets members' clinical, cultural, and linguistic needs faster and more accurately; supports the needs of managed care and waiver programs; and improves quality of care overall.	Agency provider enrollment staff collaborates with other agencies to receive standardized, electronic enrollment applications; apply standardized, automated business rules; access federated registries; and perform all available verifications (e.g., credentialing) electronically. This creates and helps maintain a robust, coordinated provider network that meets quality and effectiveness objectives, supports integrated monitoring of provider performance, and allows members to interact directly with providers.	Agency provider enrollment staff refines the verification and validation process via automated access to providers' clinical records, which creates and helps maintain a robust, coordinated, clinically sound provider network that exceeds Level 3 goals of quality, cultural appropriateness, accurate credentialing, and adequacy in meeting the needs of the population.	Agency provider enrollment staff has fully automated the enrollment process and can access all provider registries nationally via data sharing and interoperability agreements, which optimizes the provider network and meets members' needs and choices. Staff handles exceptions and essentially performs a professional oversight and consumer satisfaction function.

Table 3-7. MMM Qualities and Agency Enroll Provider Capabilities

Qualities Associated with the Five Levels					
Quality of the Level	Level 1	Level 2	Level 3	Level 4	Level 5
1. Timeliness of Business Process	Agency turnaround for application decisions can take up to 30 days but complies with regulations.	Agency turnaround for application decisions takes up to 15 days.	Agency turnaround for application decisions can be immediate.	Agency turnaround for application decisions is immediate.	Agency turnaround for application decisions is immediate on a national scale.
2. Data Accuracy and Accessibility	Application data and format are nonstandard. Some enrollment records are stored electronically, but storage is not centralized. Provider data, including ID and taxonomy, is not comparable across provider types and programs, which hampers agency's ability to monitor performance and detect fraud and abuse.	Application data and format are standardized within the agency. Enrollment records for different programs are stored separately. Providers have different IDs per program and cannot be cross matched without difficulty. Data comparability improves. Performance data is measured periodically but requires sampling and statistical calculation. ⁵	Application data and format are standardized nationally. Enrollment records are stored either in a single provider registry or in federated provider registries accessible by all applications. The NPI is the identifier of record. Providers, members, and State enrollment staff have secure access to appropriate data on demand.	Medicaid provider registries are federated with regional data exchange networks. Authorized, authenticated parties have instant access to provider data locally. Access to clinical data helps agency select providers that meet quality standards and map to clinical needs of patients.	Medicaid provider registries are federated with regional data exchange networks across the country and, if desired, internationally. Authorized, authenticated parties have instant access to provider data nationally.
3. Efficiency; Ease of Performance	Agency staff contacts external and internal credentialing and verification sources via phone and fax, which requires a large staff to meet targets for provider enrollment.	Agency uses "siloed" programs in accordance with program-specific rules. Providers can submit on paper or electronically via a portal, which improves turnaround. Verifications are a mix of manual and automated steps.	Agency uses a single set of enrollment rules as Medicaid and other programs come to centralize provider enrollment processes. Agency may continue to use manual steps for exceptions.	Agency uses data from any data-exchange partner regarding a provider enrolled with the State Medicaid program. External and internal validation sources automatically send notice of change in provider status, which eliminates the need to reverify and helps agency identify sanctioned providers in real time.	Agency uses data from any data-exchange partner regarding a provider enrolled with any program in the U.S. Nationally interoperable validation sources automatically send notice of change in provider status, which eliminates the need to reverify and helps agency identify sanctioned providers in real time and anywhere in the U.S.

⁵ There is inconsistent reporting to National Provider Data Bank or to the HIPAA Health Integrity Protection Database.

Qualities Associated with the Five Levels					
Quality of the Level	Level 1	Level 2	Level 3	Level 4	Level 5
4. Cost Effectiveness	Process requires large staff.	Process requires fewer staff and produces better results than Level 1.	Process requires fewer staff and produces better results than Level 2. Shared services and interagency collaboration contribute to streamline the process.	Process (fully automated and with access to clinical data) allows staff to become a core team of professionals who monitor provider network performance.	Same as Level 4.
5. Quality of Process Results	Much of application information is manually validated. Decisions may be inconsistent. Sanctioned providers may continue to be enrolled ⁶ because of limited ability to monitor and reverify providers' status.	Automation improves accuracy of validation and verification. Emphasis on managed care and waiver programs encourages more scrutiny of and reporting to national databases.	Use of standardized interfaces automates conduct of all verifications. Consistent enrollment rules and standardized data available from a single source support continuous performance measures that the agency can use to adjust rates in real time. Agency sends verification inquiries to any other agency regarding provider status. Provider network quality improves.	Prospective monitoring of program integrity during adjudication improves detection of fraud and abuse, which results in timelier sanctioning. Agency can access and monitor clinical data to measure performance. Agency can share performance measures via federated provider registries.	Same as Level 4 but on a national scale. Agency can share performance measures nationally via federated provider registries.
6. Utility or Value to Stakeholders	Agency focus is on building a provider network that meets the members' needs. Staff does not have time to focus on cultural and linguistic compatibility, member satisfaction, or provider performance.	Agency assigns members to primary care physicians to coordinate their care; uses managed care guidelines and waiver settings to ensure adequacy of network (e.g., ratio of number, type, and location of provider to size and demographics of member population); makes cultural and linguistic matches.	Agency lets members view provider profiles, interact directly with providers and locations, and make informed choices. Cultural and linguistic indicators improve selection of appropriate providers. Speed and accuracy of enrollment process improves provider and member satisfaction.	Agency lets providers, members, and care managers access standardized provider registries and view clinical performance indicators to make informed decisions regarding provider selection and provider referrals.	Same as Level 4 but on a national scale, where appropriate.

⁶ There is inconsistent reporting to National Provider Data Bank or to the HIPAA Health Integrity Protection Database.

In summary, the MMM defines boundaries for each level of maturity. This provides a consistent definition for each level. Business capabilities defined for each business process point back to the MMM. The next two chapters (Chapter 4, Business Process Model, and Chapter 5, Business Capability Matrix) explain how these pieces fit together.

Refer to Part I Appendix B, Maturity Model Details, for detailed examples of the MMM. The following chapters continue to link the MMM to the business capability for a specific business process.