
Overview of the MITA Initiative

Introduction

This section provides an overview of the Medicaid IT Architecture (MITA) initiative designed by the Centers for Medicare & Medicaid Services (CMS) to serve the Medicaid enterprise in the 50 States and the District of Columbia. This overview covers the following topics:

- What is the Medicaid enterprise?
- What is MITA?
- What are the Medicaid enterprise mission and goals?
- What are the MITA mission, goals, and objectives?
- What are the guiding principles of MITA?
- What are the key technical architecture features of MITA?
- What challenges does MITA address?
- How does MITA benefit stakeholders?
- How is MITA to be used?
- How does the MITA initiative evolve?

What Is the Medicaid Enterprise?

The MITA initiative focuses on the Medicaid enterprise. The *Medicaid enterprise* is defined in the MITA context as three spheres of influence: (1) the domain of State Medicaid operations in which Federal matching funds apply; (2) the interfaces and bridges between the State Medicaid agency and Medicaid stakeholders, including providers, beneficiaries, other State and local agencies, other payers, and CMS and other Federal agencies; and (3) the sphere of influence that touches, or is touched by, MITA (e.g., national and Federal initiatives, including the Office of the National Coordinator for Health IT [ONC], standards development organizations [SDOs], and other Federal agencies such as the Department of Homeland Security [DHS]). **Figure O-1** illustrates the Medicaid enterprise in the context of these three spheres of influence.

The core of the Medicaid enterprise is found in the first sphere — the business processes that support the Medicaid organization and for which Federal matching funds are available.

The second sphere represents key stakeholders with which the Medicaid agency exchanges information through interfaces that are also supported by Federal matching funds (shown as five narrow arrows in Figure O-1). The MITA initiative seeks to influence its data trading and sharing partners, although Federal funding is usually not available for stakeholder operations.

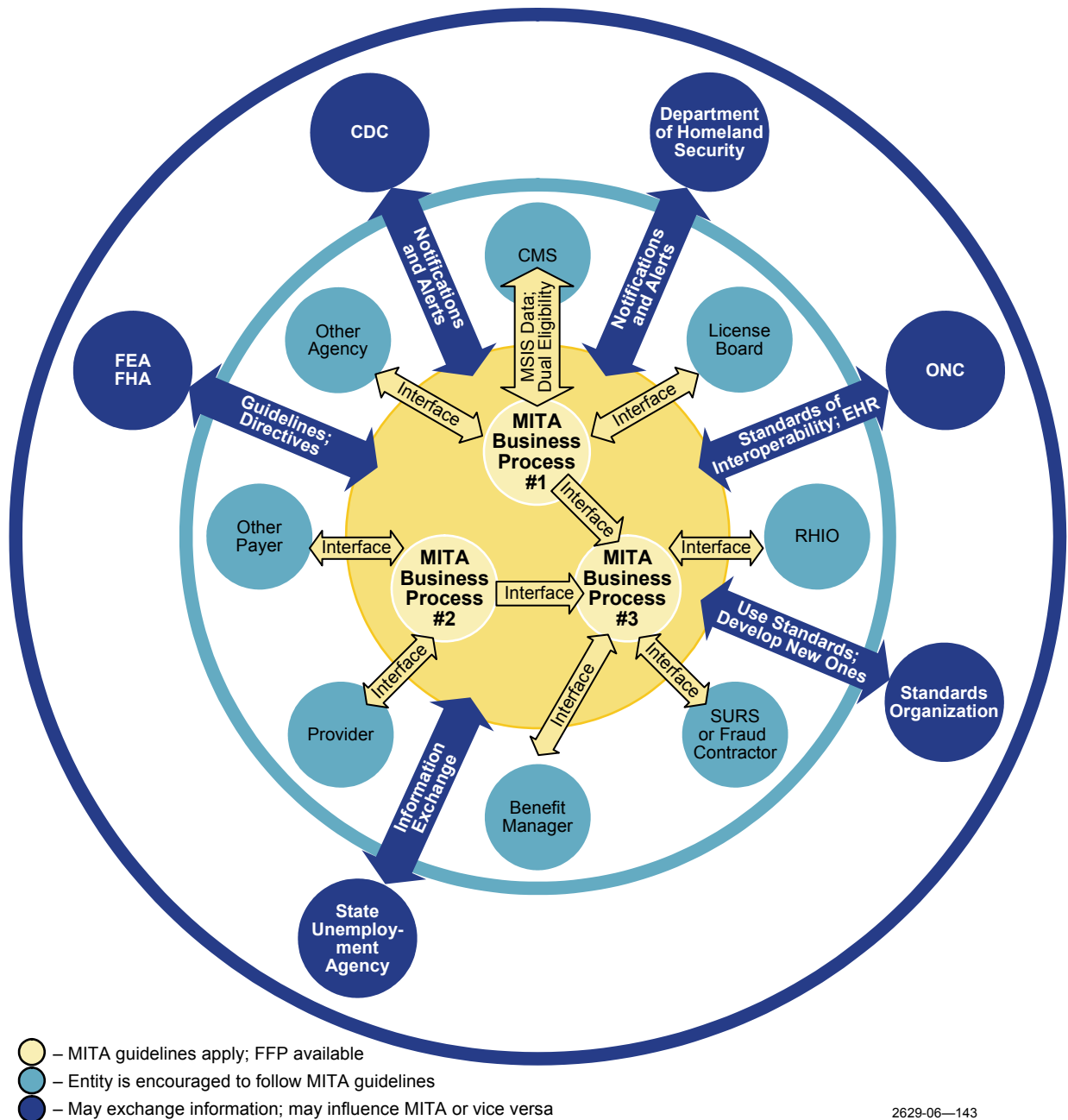


Figure O-1. The Medicaid Enterprise Is Defined by Core Business Processes, Interfaces with Stakeholders, and a Third Sphere of Influence

The third sphere is characterized by the exchange of information or influence without involvement of any Federal matching funds for the Medicaid agency. Examples of these relationships include:

- MITA will adopt guidelines and standards promulgated by the ONC, the Federal Health Architecture (FHA), the Federal Enterprise Architecture (FEA), and multiple SDOs. In turn, MITA may propose standards and guidelines to these organizations on behalf of State Medicaid agencies. For example, a collaborative CMS/State workgroup could propose a National Provider Identifier (NPI) standard for atypical providers common to many Medicaid programs.
- With other entities such as a State unemployment agency, Medicaid may agree to provide access to certain data. An organization could move from the third sphere to the second, if CMS enters into agreement with the organization for an exchange of information that could in the future receive Federal matching funds (e.g., in the event that the DHS or the Centers for Disease Control and Prevention [CDC] requires certain messaging from the State Medicaid agency related to bioterrorism or pandemic notifications).

What Is MITA?

MITA is both an initiative and a framework. As an initiative, MITA is a plan to promote improvements in the Medicaid enterprise and the systems that support it through collaboration between CMS and the States. As a framework, MITA is a blueprint consisting of models, guidelines, and principles to be used by States as they implement enterprise solutions.

MITA is an IT initiative intended to stimulate an integrated business and IT transformation affecting the Medicaid enterprise in all States. MITA will improve Medicaid program administration by establishing national guidelines for technologies and processes. The MITA initiative includes an architecture *framework*, *processes*, and *planning guidelines* that allow State Medicaid enterprises to meet their Medicaid objectives within the MITA Framework — yet support unique local needs.

- *The MITA Framework* is a consolidation of principles, business and technical models, and guidelines that creates a template for States to use to develop their individual enterprise architectures.
- *The MITA processes* provide guidance to State Medicaid enterprises on how to adopt the MITA Framework through shared leadership, partnering, and reuse of solutions.
- *The MITA planning guidelines* help States define their own strategic MITA goals and objectives and develop tailored enterprise architectures that are consistent with CMS expectations. In the future, MITA guidelines will support States' requests for

appropriate Federal financial participation (FFP) for their Medicaid Management Information Systems (MMISs).

The MITA journey is just beginning. The MITA Initiative and the MITA Framework will evolve with the participation and help of Medicaid stakeholders and partners.

The MITA Framework *is* the primary product of the MITA Initiative.

The following text provides more details regarding the MITA Framework, processes, and planning guidelines.

Architecture Framework

The MITA Framework consists of three parts:

- Business Architecture
- Information Architecture
- Technical Architecture

Business Architecture

The MITA Business Architecture provides the framework for defining a vision for the next decade for improvements in the Medicaid program operations that result in better outcomes for all stakeholders. The Business Architecture contains models of typical Medicaid business processes and describes how these processes can improve over time. A maturity model is used to show how business capabilities can evolve. States will use the Business Architecture to assess their own current business capabilities and determine future targets for improvement.

Information Architecture

The MITA Information Architecture is a companion of the Business Architecture. Business processes and capabilities are mapped to a conceptual data model and a logical data model. The information requirements of the Medicaid organization can impose change on the business model, and new business process requirements can require new information. It is a two-way street. The Information Architecture also includes a data management strategy and data standards.

Technical Architecture

The MITA Technical Architecture includes business, technical, and data access services; an application architecture; and technology standards. Collectively, these elements define a set of services and standards that States can use to plan and specify their future systems.

In addition to the components of the MITA Framework, the initiative also is developing tools and guidelines for planning and preparing for the transformation.

Processes

The MITA processes provide structured approaches for States to use in planning and implementing their transition to MITA. In Framework 2.0, these processes have not yet been defined. Processes to be developed through collaboration of CMS, States, and vendors include the following:

- Transition and Implementation Planning
- Advance Planning Document (APD)
- Shared Responsibility and Commitment
- Managing Working Groups
- Change Management

The Transition and Implementation Planning process allows States to define their target business architecture and capabilities and develop a phased plan to achieve the target state. The APD process describes the MITA-based approval criteria for APDs and the approach for States to use in developing their APDs.

MITA implementation requires the collaborative efforts of stakeholders. The Shared Responsibility and Commitment process defines the MITA governance structure and procedures necessary to achieve the needed stakeholder participation for MITA success. A key aspect of MITA governance is the formation and conduct of working groups that will allow States to collaborate on solutions. The Managing Working Groups process defines the structure of working groups and the processes that govern their operation. Finally, the Change Management process describes the organizational structure and the procedures for configuration management of MITA artifacts.

Planning Guidelines

The MITA planning guidelines provide States with recommendations and best practices to support implementation of the MITA Transition and Implementation Planning process. In Framework 2.0, these guidelines have not yet been defined. Guidelines to be developed through collaboration with CMS, States, and vendors include the following:

- IT Management
- State Medicaid Enterprise Architecture Development
- MITA Solution Sets
- Transition Strategy

IT Management provides each State with a recommended approach and criteria for evaluating that State's IT applications. State Medicaid Enterprise Architecture Development describes a recommended approach for a State to develop its Medicaid enterprise architecture to be consistent with that of MITA and the enterprise architecture developed by the State Chief

Information Officer (CIO). The Transition Strategy describes best practices for migrating from legacy business and technical architectures to MITA.

What Are the Medicaid Enterprise Mission and Goals?

The MITA initiative begins with a statement of the Medicaid enterprise mission and goals (see **Figure O-2**). This statement is derived from surveys and interviews of State Medicaid program directors, CMS division directors, industry leaders, and other Federal agencies. It provides the foundation for the business-driven MITA Framework.

Medicaid Mission	To provide quality healthcare to members by providing access of the right services to the right people, at the right time, for the right cost
Medicaid Goals	<ul style="list-style-type: none"> ■ Improve healthcare outcomes for Medicaid beneficiaries ■ Ensure efficient, effective, and economical management of the Medicaid Program

Figure O-2. The Medicaid Enterprise Mission and Goals

What Are the MITA Mission, Goals, and Objectives?

The MITA team developed the following MITA mission, goals, and objectives statements in response to the Medicaid enterprise mission and goals. Through the realization of these goals and objectives, MITA will aid States in achieving their Medicaid mission and goals.

MITA Mission

The MITA mission is to establish a national framework of enabling technologies and processes that support improved program administration for the Medicaid enterprise and for stakeholders dedicated to improving healthcare outcomes and administrative procedures for Medicaid beneficiaries.

MITA Goals

The MITA initiative seeks to accomplish the following goals:

- Develop seamless and integrated systems that communicate effectively to achieve common Medicaid goals through interoperability and common standards
- Promote an environment that supports flexibility, adaptability, and rapid response to changes in programs and technology
- Promote an enterprise view that supports enabling technologies that are aligned with Medicaid business processes and technologies
- Provide data that is timely, accurate, usable, and easily accessible in order to support analysis and decision making for healthcare management and program administration

- Provide performance measurement for accountability and planning
- Coordinate with public health and other partners, and integrate health outcomes within the Medicaid community

MITA Objectives

The MITA goals translate into the following objectives:

- Adopt data and industry standards
- Promote reusable components; modularity
- Promote efficient and effective data sharing to meet stakeholder needs
- Provide a beneficiary-centric focus
- Support interoperability, integration, and an open architecture
- Promote secure data exchange (single entry point)
- Promote good practices (e.g., the Capability Maturity Model [CMM] and data warehouse)
- Support integration of clinical and administrative data
- Break down artificial boundaries between systems, geography, and funding (within the Title XIX Program)

The goals and objectives of the MITA initiative further translate into guiding principles.

What Are the Guiding Principles of MITA?

The following key guiding principles underlie the development of the MITA Framework. The principles provide more detail regarding the direction taken by the MITA initiative.

Business-Driven Enterprise Transformation

The MITA Framework is firmly grounded in enterprise architecture principles. It defines a business transformation over a 5-year and long-term (10+ years) timeframe and defines a Technical Architecture and transition strategy to enable the business transformation. This approach, which today is common across industries as diverse as finance, transportation, and defense, will allow States to align IT solutions with their shared and unique business needs.

MITA will be able to support the following categories of business needs facing State Medicaid organizations:

- Individual State needs
 - Align with State strategic goals
 - Align with the State enterprise architecture

- All States' Medicaid-wide goals
 - Align State approaches among States
 - Align State approaches with national direction
- National goals through MITA alignment with national initiatives and international standards for data and interoperability

Combination of Commonalities and Differences

MITA defines processes, data, and technical solutions that are common to many State Medicaid organizations and can adapt and extend them to meet State-specific needs. Identifying common business processes enables the definition and reuse of common solutions, which in turn enables States to share development costs. The structure of the MITA models and templates captures and represents these differences and accommodates cost-effective implementation of State-specific needs by using common solutions.

State participation in the development of the MITA models and templates ensures the proper representation of commonalities and differences among States. States are encouraged to work together to agree on common approaches where suitable, such as the need to share data, develop end-to-end processes that connect organizations, and reuse or repurpose technical solutions. They may agree to differ where appropriate, such as on State-specific needs or in ways to promote creativity and innovation. The MITA initiative also encourages States to collaborate to create technical solutions that support variations, such as adapting or extending solutions. For example, there should be one set of data validity edits and one set of business rules for processing transactions used by multiple input sources (e.g., point of service [POS], Internet, direct data entry, key entry, electronic media claim [EMC]). All business rules and adjudication logic should be easy to modify or extend, such as with table-driven design or business rules engines.

This approach seeks to achieve a balance between commonalities and differences that will enable standard mechanisms for interoperability and data exchange. The MITA goal is to maximize the benefit across the Medicaid enterprise, while promoting innovation and creativity in local implementations.

Standards First

The MITA initiative promotes the use of data and technical standards to improve the cost effectiveness of IT development. The use of data standards ensures better access to data by promoting data consistency and enhanced sharing through common data access mechanisms. The use of technical standards (e.g., open standards) facilitates the integration of commercial off-the-shelf (COTS) products and the reuse of solutions within and among States, resulting in lower development costs and risk.

To the greatest extent possible, MITA relies on both national standards for health and data exchange and open standards for technical solutions. Where Medicaid-specific standards are

needed, MITA hopes to foster agreement within the Medicaid community and, if appropriate, submit standards to national standards bodies.

Some specific opportunities for applying standards in MITA include:

- All functional modules should be designed for component reuse and should be interoperable. A given module (e.g., a data warehouse module) from one vendor could then be easily replaced by an equivalent functional module from another vendor.
- All systems should use open, nonproprietary file structures that any other MMIS module or reporting system can access.
- There should be one universal data directory with clear, unambiguous definitions and formats for each data element (e.g., names, addresses, dates, and special code sets for sex, location, eligibility category, patient status, and procedure/diagnosis).
- All data structures and system architecture should be based on MITA conceptual and logical data models.
- To the extent possible, multiple databases with similar data from different sources that feed the MMIS should be standardized and incorporated into master records (e.g., multiple sources of eligibility information should be consolidated around a single, permanent identification number in an eligibility hub). The same would hold for multiple sources of accounts receivables (e.g., adjustments, third-party recoveries [TPRs], Surveillance and Utilization Review [SUR] recoveries, and drug rebates).

Built-in Security and Privacy

Key security and privacy principles include the following:

- Security and privacy capabilities are defined and woven into the architecture. Access requirements are identified in the business processes, defined within the data models, and implemented through the MITA technical models.
- MITA technical capabilities are chosen to protect the Medicaid enterprise against known threats and, as it evolves, respond to new threats.
- Security defined in the data models includes the following:
 - Access rights specified by role and by data element
 - Tagging private data
 - Linking use of data with data query definition
- Security is implemented in models using the following:
 - Configuration tools
 - Business application functionality linked to common security mechanisms
- A single security sign-on is implemented to all systems that support the Medicaid enterprise.

Data Consistency Across the Enterprise

The MITA principle of data consistency across the enterprise seeks to ensure, to the greatest extent possible, that (1) the number of copies of a data element is minimized; (2) multiple copies, if they are necessary, are synchronized in a timely manner; and (3) the official data of record is always available. For example, online analytical processing (OLAP) requires a different database organization and architecture from continuous online transaction processing (OLTP). Thus, it might be desirable to have different hardware and software platforms and data stores for the claims and transaction processing engine and the data warehouse.

In addition to guiding principles, the MITA initiative also promotes key technical architectural features described in the next section.

What Are the Key Technical Architecture Features of MITA?

The key features of the MITA Technical Architecture are the following:

- Service-oriented architecture
- Common interoperability and access services
- Adaptability and extensibility
- Hub architecture
- Performance metrics

Service-Oriented Architecture

Service-oriented architecture (SOA) is a software design strategy that packages common functionality and capabilities (*services*) with standard, well-defined *service interfaces*, to produce formally described functionality that can be invoked using a published *service contract*. Service users need not be aware of “what’s under the hood.” A service can be built using new applications, legacy applications, COTS software, or all three. Services will be designed so that they change to support State-specific implementations.

We are aware that the technical term, *service*, can cause confusion with the common business term as in *medical services*, *professional services*, *physician services*, *category of service*, or *type of service*. The context determines the use of the word *service*.

Common Interoperability and Access

Utility services make it possible to implement common interoperability and access. Interoperability refers to system-to-system communication. Access refers to system-to-person communication. For example, PDA access can be used for multiple applications. On the other hand, a single application can allow access from multiple media; e.g., Web interfaces, PDAs, kiosks, or voice response systems (VRSS).

Adaptability and Extensibility

Adaptations allow States to change the specifics of processes, data, or technical solutions using configuration files to meet their specific needs. Extensions allow States to add new functionality and capabilities. Both characteristics build in the capabilities needed to accommodate both common needs and State-specific needs.

Hub Architecture

The hub architecture facilitates data exchange and data sharing while allowing each organization control and ownership of its own data. Hubs, unlike data marts and data warehouses, do not require that data be moved to a central location. Data is described using standard definition formats that map the data to standard data elements where appropriate and provide the data descriptions when the data elements are nonstandard. Security and privacy access rules for each data element can also be represented in a standard way. A collection of utility services at hubs is designed to read the data descriptions and the security and access rules and use that information to “expose” the data to users who qualify for access and to receive and process their queries.

Performance Metrics

The use of standards and agreement on a set of common business processes and data sets make it possible to develop performance metrics, measurement techniques, conformance criteria, and corresponding utility services. Performance metrics make it possible to measure business performance across the Medicaid enterprise, including tracking changes in programs and policies and evaluating corresponding changes in health outcomes.

What Challenges Does MITA Address?

Most State Medicaid enterprises have become highly complex, multibillion dollar enterprises. They are major economic engines that, collectively, draw more than \$180 billion in Federal funding each year to local economies. Typically, Medicaid is the largest or second largest budget item in each State and, as such, has enormous political visibility. The MMIS contract is typically the largest services contract let by State government and, in many cases, also attracts intense public scrutiny.

Historically, the MMIS was designed primarily as a financial and accounting system for paying provider claims accurately and timely. As the Medicaid program has grown more complex, however, MMISs needed to support the Medicaid enterprise have grown in number and complexity. MMIS, which once was defined as a single, integrated system of claims processing and information retrieval, is being redefined under MITA as the new “virtual MMIS” to most, if not all, of the additional nonfinancial Medicaid systems that run on multiple hardware and software platforms.

As Medicaid functions (e.g., managed care, clinical support, data analysis, fraud detection, and prior authorization) became automated, they were usually added as separate systems cobbled together with the MMIS or, in some cases, were hard coded into the MMIS. As a result, they did

not necessarily communicate directly and often exchanged information with difficulty. Medicaid administrators could not, for example, get an hourly consolidated overview of all provider and beneficiary activity because of such fragmentation. (For example, prior-authorization staff might be unable to see other outstanding authorization requests, such as dental, pharmacy, hospital, durable medical equipment [DME], and physician and, therefore, could not understand an individual's total treatment profile.)

These special-purpose, “best-of-breed” systems might have required a dozen different servers and user support systems (e.g., separate applications and call centers for provider services, recipient services, enrollment broker, pharmacy benefit management clinical help desk support, data warehouse support, desktop support, fraud hotline, and prior authorization support). Each separate platform might have its own unique and usually proprietary architecture, data standards, update cycles, and workflow requirements.

A State's MMIS might process most claim types under one architecture and one data standard, but process other claim types (e.g., dental and pharmacy claims) through standalone systems, each of which might have its own architecture and data standards. For example, formats for names, addresses, and dates and code sets for gender, location, provider, and recipient might be stored in three different ways (with three different meanings) in the three separate claims-processing systems (e.g., a gender code might be 1, 2, or 3 in one system and M, F, or U in another). Translating these formats to one standard and merging all the data into the data warehouse for management reports and SUR reporting, profiling and trend analysis, and pattern recognition can be very difficult and may result in severe compromises in data comparability and usability.

MITA is intended to help the MMIS become the information “central nervous system” that supports the entire Medicaid enterprise in a standard way. A universal data dictionary and standard definitions of common data elements will help MMISs transcend platforms. Using best-of-breed systems for special purposes requires that those systems be compatible with the MMIS data and architecture standards so they can communicate directly with each other and so the resulting processed data will be meaningful when merged into operational data stores.

How Does MITA Benefit Stakeholders?

The MITA initiative provides significant benefits to Medicaid stakeholders, including the public, States, and the Federal government. MITA principles and guidelines are designed to achieve the following benefits.

Benefits to the Public

Greater beneficiary access to quality care — MITA encourages managers of Medicaid programs to identify and target at-risk populations and collect and publish point-of-care quality statistics to improve patient safety.

Greater choice and independence for beneficiaries — Enhanced State-to-State or intrastate analysis of provider performance improves quality of care, and increased knowledge promotes choice and independence for beneficiaries.

Improved public health outcomes — MITA promotes greater access to both clinical and administrative data to support research, improve public health surveillance and alerts, and permit early detection of and response to bioterrorism attacks and pandemic outbreaks.

Benefits to the States

Improvements in the management of the Medicaid program — MITA gives States better access to a wider range of accurate and timely data. States can share this data within the Medicaid enterprise, with other States, and with Federal agencies through efficient and secure data exchange. As State Medicaid systems become more adaptable and flexible, States can then respond better to changes in laws and court orders, and can formulate policies that better support broader analysis of program needs and measurement of health outcomes.

Improved return on State IT investment — MITA provides a common direction for the future development and evolution of State MMISs. This common direction proposes a better return on IT investment through reusable system components, adherence to common standards, and improved coordination and alignment with national health initiatives.

IT alignment with Medicaid priorities — MITA promotes the alignment of each State's individual business goals with its IT strategies through enterprise architecture. This approach also allows better coordination with the State's enterprise architecture.

Benefits to the Federal Government

Improved CMS review of State Medicaid IT plans and systems — MITA establishes criteria for guiding States' development of an APD to include components that reflect MITA goals and objectives. CMS Regional Office staff can use the same criteria for a consistent review of States' APD submissions.

Improved strategic planning and policy formulation — MITA fosters sharing of timely, accurate, usable, easily accessible, and secure information among States and Federal agencies, and it provides necessary and important insights into national trends and the needs of the Medicaid-eligible and provider populations.

Alignment with national health information initiatives — MITA supports and incorporates the principles of national initiatives, especially those that support improving the quality of public health data.

How Is MITA To Be Used?

By CMS

CMS is using MITA to communicate a common vision for the Medicaid program and to provide guidance on achieving that vision. This leads to an updated APD review process and criteria to

ensure that State IT planning meets MITA goals and objectives. Details about the new review criteria will be developed through interaction with the first States to adopt MITA. The following are examples of possible additions to the APD:

- Demonstrate that planned enhancements support State and Medicaid strategic goals
- Describe how intrastate systems other than the MMIS have been considered in developing the solution
- Document their analysis of alternative solutions, particularly their review of solutions other States have implemented that might be considered valuable
- Describe data-sharing components of solutions or justify reasons for not including data-sharing solutions at this time
- Justify maintenance costs that exceed certain thresholds vs. cost of enhancements that could reduce maintenance costs

By States

The goal of MITA is to change the way States design and build, change, or modify their Medicaid systems and the manner in which States perform IT investment planning. In the future, States must ensure that their business goals and objectives meet the MITA goals and objectives. To implement the MITA Framework, States will choose the elements of the MITA Framework that best meet their strategic and tactical IT goals and objectives, and reflect their choices in their APDs. CMS recognizes that different States have differing needs and are likely to begin their participation at different points. The MITA Framework can accommodate an implementation path best suited to each State.

States can help refine MITA Framework models to ensure that MITA meets the ongoing, changing needs of the State Medicaid participants. States can also collaborate on joint projects to develop and implement shareable, reusable IT components and business processes. State participation will help shape the Medicaid systems of the future.

By Vendors

Vendors are encouraged to use the MITA Framework to shape their product offerings to meet MITA guidelines and to enable the leveraging and reuse of solutions across States. Vendors can consult the Framework to determine how well their products and services align with MITA models and principles. They can also design services to offer to all States. They can use the strategies for transformation proposed by MITA to plan their own evolution and assist their State clients in adopting MITA principles. CMS seeks vendor participation in the development of services that can be exposed to the Medicaid community and to create standard interfaces that conform to MITA standards.

How Does the MITA Initiative Evolve?

Today's MMIS has come a long way since its conception in the 1970s. We have been at work on MITA for a little more than 2 years. Although we do not envision this development process lasting another 30 years, we realize that for the MITA initiative to succeed, it will take time, hard work, and tremendous collaboration among Medicaid stakeholders, including the public sector, the IT industry, providers, and beneficiaries.

The MITA initiative is conceived as a collaborative effort supported by CMS, States, vendors, other agencies, and other organizations within the Medicaid enterprise. The vision of the future that the MITA Framework presents cannot be achieved overnight. CMS encourages States and vendors to form workgroups to carry on the work begun by the MITA initiative and presented in Framework 2.0. For example, a National Medicaid EDI HIPAA (NMEH) workgroup has been meeting to edit, refine, expand, and improve business process descriptions. These improvements are already incorporated into some of the business processes in Part I Appendix C. Several States have volunteered time as "early adopters" to review MITA text or describe and contribute their own efforts at transformation. Many States are incorporating MITA principles into RFPs for new systems or services. A Private Sector Technology Group (PS-TG) workgroup is working on a white paper, *The Open MMIS*, which helps to clarify technical strategies contained in this Framework. The MITA evolution depends on these multiple strategies.

While CMS continues in its role of guidance and maintenance of the MITA Framework, collaborative groups of States and vendors are needed to perform the following important tasks:

- Refine the models presented in this document
- Develop business services and solution sets that can be shared by States
- Support a repository for all MITA artifacts (e.g., models, services, metadata, State best practices)
- Develop a logical data model as a companion to the business process model
- Create a charter and governance concept
- Support an architecture board that can test products as they become available in the field

The combination of all these collaborative efforts will advance the goals of MITA. As MITA evolves, CMS plans to use MITA principles and models in the review and approval of FFP for the MMISs of the future. We plan to incorporate these standards into the Federal MMIS Certification Review criteria as benchmarks to measure progress from today's transaction-based MMISs to enterprisewide, patient-centric MMISs.

This page intentionally left blank.