SLIDE PRESENTATION NOTES

3 - Introduction to the MITA Framework Release 2.0

Slide 3 This is Figure 1-7 from Framework 2.0
The left arrow indicates the components of the Business Architecture.
The center arrow indicates the components of the Information Architecture.
The right arrow indicates the components of the Technical Architecture.

Slide 4 This is a sub set of Figure 1-7. It shows the Concept of Operations guided the development of the MITA Maturity Model as well as the definition of the Business Areas and Business Processes within the Business Model. It also influenced the skeleton of the Conceptual Data Model.
In turn the MITA Maturity Model was the foundation for the Business Capabilities
Also apparent are the horizontal relationships between Business Process, Conceptual Data Model and Technical Function.
A Business Process defines trigger and result data which is contained as a placeholder in the Conceptual Data Model (currently as placeholders). Additionally, Technical Functions define data that is also contained in the Conceptual Data Model.
Similarly, a Business Capability describes a Business Process with greater specificity. The data described in the Business Capability is defined the Logical Data Model. The same is true for a Technical Capability. Finally, there is a loose connection between the Business Capability and the Technical Capability as higher level Business Capabilities are achieved through the supporting Technical Capability.

Slide 5 This is essentially the same diagram with additional information about Framework 2.0.
The Concept of Operations was developed with Use Cases. From the Concept of Operations the MITA Maturity Model was developed with 5 levels of maturity
The Business Model has 8 Business Areas and a current total of 78 Business Processes.
Each Business Process has up to 5 Capabilities corresponding to a Maturity Level.
The Conceptual Data Model contains the data groupings defined by business processes and technical functions. The Logical Data Model defines the data attributes for the data used by a Business Capability.

Slide 6 The Information Architecture supports both the Business and Technical Architecture. In this example the Business Process Enroll Provider needs information like the Provider's name, address etc. The Technical Function Security, defines security tokens. This data is stored in the Conceptual Data Model (currently as a placeholder).
The Logical Data Model maps to specific Business Capabilities. For example, Provider becomes NPI. The Logical Data Model also maps to a Business Service. For example a level 4 business service may require different data than a level 3. The same is true for technical services.

Slide 7 The Technical Architecture has the same structure as the Business Architecture. A Technical Area is a grouping of Technical Functions. In this example Authentication is on of several functions within the Technical Area Security. Technical Capabilities follow the same 5 levels as the Business Capabilities. In this example, the level 3 Authentication Capability is PKI. There is a loose link between Technical and Business Capabilities. The technical capabilities enable the corresponding business capability at a given level of maturity.It is important to note that the Technical Capabilities in of themselves are not the value proposition. It is the Business Capability that matters. Technical capabilities (no matter how good) do not guarantee a given Business Capability Level.

Slide 8 Within the Technical Architecture, there are several key relationships. The Business Service (which is derived from a Business Capability, level 3 or higher) may utilize a Technical Service (which is derived from the Technical Capability). Typically the Technical Service is necessary to implement the Business Service. Both types of services will use one or more Solution Sets that define the details for the physical implementation.

Slide 9 The last component of the Technical Architecture is the Application Architecture. The Application Architecture defines the environment (e.g. Enterprise Service Bus) and orchestrates the operation of the Business and Technical Services.

4 - The MITA Business Architecture

Slide 3 Concept of Operations (COO)
The COO serves as a model to frame a vision for Medicaid program healthcare outcomes
and administrative
efficiencies.

Slide 5 Close-up of the Concept of Operations.

Slide 6 "As Is" view of Medicaid operations is a very busy model. There are many operational units performing daily functions to manage the Medicaid program.

Slide 7 The "To Be" model envisions a much simpler organization, able to focus on oversight of the program, strategic planning, analysis of program outcomes, and stakeholder satisfaction. Operations are now highly efficient with minimal human intervention required. Decisions are automated because clinical data and interoperable standards allow for direct communication between the payer and the provider and the patient.

Slide 8 This graphic shows that a transformation will take place between the AS IS and the TO BE. In the present, the majority of Medicaid staff concentrate on daily operations. In the future, emphasis will be on a think tank of strategic staff supported by a minimal contingent of process management and operational staff.

Slide 9 MITA Maturity Model (MMM)
The MMM provides a description and measurable qualities for five levels of maturity and serves as a roadmap for improvements and a transition from the present to the future.

Slide 12 Next we will look at some examples showing more detail. We start with the general Provider Management business area. The MITA BPM shows three subheadings. Any State can represent these basic functions with different groupings and titles. Future workgroups of States and CMS may reconfigure this representation. The importance to the MITA initiative is that all States can identify with this model and align their self-image to it. This does not mean that all States will look alike; it means that all States can understand how they relate to this model. In the end, it is the business process that is the basic building block of MITA. In order to create re-usable, interoperable products, States will need to form a consensus around the inputs, outputs, and basic functions of each business process.

Slide 13 In this presentation, we focus on the Business Process Model that encompasses Medicaid enterprise operations. *Business processes are neutral regarding agency organization, location of functions, staffing, in-house vs outsourced, or degree of automation;* it simply describes key functions in terms of an Event Trigger, activities, and Results.
Does not matter who or what does the work, where it is executed, whether in-house or

outsourced, or whether it is automated or manual.
Provides a common base and vocabulary. *States are asked to align their definition of business processes to the MITA model; they are not asked to conform.*
MITA business processes are often a roll-up of many into one, e.g., different types of providers in one Enroll Provider business process.

Slide 14 A Business Process is a unique function that is activated by one or more trigger events, carries out one or more steps, and produces one or more results or outcomes.

The MITA business process description is augmented by:

- A definition that describes the overall objective and purpose
- Definition of the triggers and results
- Description of the business logic
- A definition of a performance measure, so all stakeholders can measure the same things in the same way
- Constraints
- Failure points
- Predecessors and successors

Slide 15 Here is a close-up of a common business process found in the MITA BPM, *Enroll Provider*. The BP starts with an event trigger, in this case, receipt of a provider application data set which triggers a series of steps some of which require access to external data (license information, college degree information, NPI database, database of providers convicted of fraud, etc.). The BP ends with the creation of standard Result data.

Slide 16 *The Business Capability is the basis for the State self-assessment.* Each business process is described as it evolves from the current As Is to the future To Be. The evolution is described in terms of five intervals – referred to as Maturity Levels. We describe each business process as it commonly exists now (Level 1), as some already exist (Level 2), as all can be in five years (Level 3), as all will evolve with ready access to clinical and administrative data (Level 4), and as far as we can project into the future where we envision that all processes will be reshaped and benefit from national interoperability coupled with access to clinical information (Level 5).
Business capabilities describe a business process at a point in time…five intervals over ten years
State maps its business processes to the MITA model, then determines which business capability level best matches its current capabilities
Business capabilities are the roadmap to the future.

Slide 17 High level view of the BCM:
This example uses the Member Management business area to illustrate how business processes can improve over time.

Slide 18 The BCM contains basic descriptions of the business process at the different levels of maturity. In addition, each description is further defined with a set of six Attributes (a.k.a., qualities, characteristics).
For example, *Enroll Provider Timeliness* at Level 1 = complete enrollment status within 30 days. Level 2 = within seven days; Level 3 = within 48 hours; Level 4 & 5; within 24 hours including validation of clinical record nationwide.

Value to Stakeholders *Enroll Provider* at Level 1 = establishes a provider network that complies with agency policy and generally meets patients' needs. At Level 3 = improves provider satisfaction with one-stop shop timely enrollment; patients access provider network info including cultural and linguistic indicators and receive more appropriate service.
Conformance criteria add more specificity to the Business Capability. Conformance criteria need to be developed.

Slide 19 Example of *Enroll Provider* five levels of maturity – business capability description. Remember, each description is further modified by the six Attributes (Timeliness, Efficiency, etc.) and The Conformance Criteria.

Slide 20 There are key touch points between the three architectural components of MITA:
Each business process maps to data in the Conceptual Data Model (IA)
Each business capability maps to corresponding levels of maturity in the Logical Data Model (IA)
A business capability definition is intended to be used as the basis for requirements specifying a business service (TA). The BS uses the LDM attributes described in the BC. The LDM points to specific data standards.

Slide 21 States are asked to take the Business Process Model and Business Capability Matrix and use them to assess their current capabilities and to identify improvements they seek to obtain in the future. This slide shows a summary of a self-assessment.
BPs may be assessed at different levels. Assign lower level when the BP has a mix of capabilities. State can determine that an As Is Level is just fine for the To Be (i.e., no plan to improve; or no $$)

Slide 22 State aligns its business processes to MITA
State assesses its current capability level for each business process using the MITA description, attributes, and conformance criteria
State selects the future level of capability it expects to achieve for each business process
Vendors can see how their products and services can help a State achieve its targeted business capability level

5 - MITA Information Architecture

Slide 4 ***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. It also provides an impetus for State Medicaid agencies to better understand their data and how it fits in the total realm of Medicaid information. The DMS addresses fundamental areas necessary to enable information sharing opportunities and to position State Medicaid agencies to operate in an environment of global information. (Part II Chapter 2 discusses the MITA DMS in greater detail.)

Slide 6

1. States are required to extend the MITA DMS for State-unique data and all processes, techniques, and products required by the physical data structures.
2. States will be responsible for allocation strategy to their individual organization and locations
3. Each State is responsible for supplementing the MITA DMS with the information needed for its unique data messages.
4. Individual States are responsible for developing this strategy.

Slide 9

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.

Slide 10 ***Conceptual Data Model***

The CDM shows the MITA subject areas that are common to the States and the relationships of these common subject areas. A CDM represents the overall logical structure of the data, which is independent of any software or data storage structure, and provides a formal representation of the data needed to run the Medicaid enterprise or business process. It may contain data objects not yet implemented (e.g., To-Be objects and relationships). The CDM contains the principal entities and relationships required by the Medicaid enterprise. It is used primarily as a communication tool between the business user and IT architect to obtain agreement on the scope and relationships of the data and to facilitate the identification of subject areas. (Part II Chapter 3 discusses the MITA CDM in greater detail.)

Slide 12 1. MITA Framework 2.0 does not contain a MITA CDM.
2.
3.
4. It is the State's responsibility to supplement the MITA CDM with its unique data requirements in the State's own CDM.

Slide 13 Figure 3-1

Slide 14 1. An entity represents a person, place, thing, organization, event, or concept of interest to the State and the Centers for Medicare & Medicaid Services (CMS). It is an object (or concept) about which States store information. In general, an entity must have the following characteristics:
- An entity must have one or more attributes that distinguish between individual occurrences of that entity.
- An entity must have at least one relationship to another entity
2. Relationships depict the business rules/requirements by which two entities are joined. The interaction between the entities joined by the relationship can be traced in either direction
3. Definitions must be clear, precise, and unambiguous. They must identify and distinguish the item being defined from any other actual or possible item. Examples or exclusions may be used as needed to improve clarity.
4. The domain to be applied to the entity must be specified.
5. Any standards related to the entity must be defined.
6. E/R diagramming is the method by which a formal, graphical depiction of the model is produced

Slide 15 I1. (RIM), the standard information model for healthcare, in order to achieve interoperability and follow industry standards. The MITA CDM will be extended as required to meet Medicaid-specific information requirements by incorporating a subset of early-adopter State Medicaid enterprises' data models.
3. At this point, the CDM only represents the current state of data.
5. to early adopters and then to all States.

n parallel with this process, the MITA CDM will be developed as part of an HL7 information model prototype ("sandbox") and, when approved, will be submitted by MITA as an HL7 standard.
It is the long-term goal that a MITA repository will be developed. Once the MITA

repository has been deployed, the complete MITA CDM will be located on it.

Slide 16 ***Logical Data Model***

The LDM shows data subject areas broken down into the data classes and attributes needed for every drilled-down business process, as well as the relationships between these subject areas. The LDM identifies all of the data elements that are in motion in the system or shared within the Medicaid enterprise. The MITA LDM does not include State-specific data objects and relationships. Rather, States will complete the LDM to include State-unique entities and relationships and detailed attributes. States will also be responsible for deriving a physical model from their LDM. (Part II Chapter 4 discusses the MITA LDM in greater detail.)

The MITA CDM, together with the MITA LDM, make up the Medicaid Enterprise Data Model Layer.

Slide 17 1.

2. which describes how data will be distributed to different processing nodes and how data will be structured to meet performance objectives in a specific physical implementation.

Slide 18 1.

2.

3.

4. It is the State's responsibility to supplement the MITA LDM with its unique data requirements in the State's own LDM.

5. Each State will be responsible for developing their own specific physical data models based on their specific implementation.

Slide 19 Figure 4-1

Slide 20 **Entities.** An entity represents a person, place, thing, organization, event, or concept of interest to the State and CMS. It is an object (or concept) about which States store information. In general, an entity must have the following characteristics:

It must have one or more attributes that distinguish between individual occurrences of that entity. These are the key attributes.

It must have at least one relationship to another entity.

Attributes. An attribute is an item of data, a fact, or a single piece of information about an entity (e.g., the attribute Beneficiary Birth Date provides information about the entity Beneficiary).

Relationships. Relationships depict the business rules/requirements by which two entities are joined. The interaction between the entities joined by the relationship can be traced in either direction.

Definitions. Definitions must be clear, precise, and unambiguous. They must identify and distinguish the item being defined from any other actual or possible item. Examples or exclusions may be used as needed to improve clarity.

Domains. The domain to be applied to the entity or attribute must be specified.

Related Standards. Any standards related to the entity or attribute must be defined.

Entity-Relationship (E/R) Diagram. E/R diagramming is the method by which a formal, graphical depiction of the model is produced.

Slide 21 **as a reference document** that identifies the data and relationships used by a MITA-compliant Medicaid enterprise.
as a requirements document specifying the details for data used by the services of the Medicaid enterprise. The document in this role can be used as a source for a State's APDs and RFPs.
as a tool

- for ensuring the completeness of the business model
- that enables the reengineering of Medicaid business processes.

Slide 22 ***Data Standards Table***
The DST identifies the applicable standard for each MITA data element. The MITA DST is a collection of standards applicable to the administration and operation of Medicaid enterprise data. Each standard is defined by the following attributes:
Title
Category
Objective
Source (i.e., standards body)
Type
Versions and status
Applicability
References
Relationships to other standards
Key terms
The standards are identified in associated standards templates and will relate to the key design aspects and concepts that are defined in the MITA Framework. (Part II Chapter 5 discusses MITA's data standards in greater detail.)

Slide 25 *Structure data standards* specify how data should be formatted or structured. Structure data standards are used for messages and data stores (e.g., flat files and databases) and enable two computer applications to exchange data, though not necessary to understand or act on that data. Traditional data standards have focused on the structural aspect of data standards (e.g., electronic data interchange [EDI], Health Level 7 [HL7] Version 2). This approach allowed the systems or applications to exchange data, but then point-to-point agreements needed to be developed (e.g., an interface control document) to enable applications to actually use this data.
Vocabulary data standards, conversely, deal with the content of the data elements (i.e., the semantics of the data). Vocabulary data standards enable systems to understand the meaning of the data. *International Classification of Diseases,* Ninth Edition, Clinical Modification (ICD-9-CM) is an example of a vocabulary data standard.

Slide 26 Figure 6-1

6 - MITA Application Architecture

Slide 2 Table 1-1

Slide 3 Figure 1-1

Slide 4 Figure 1-2

Slide 5 Figure 1-3

Slide 6 Figure 1-4

Slide 7 Figure 1-5

Slide 8 Figure 3-1

Slide 9 Fig 3-2

Slide 10 Figure 3-3

Slide 11 Figure 3-4

Slide 12 Figure 3-5

Slide 13 Figure 3-6

Slide 14 Figure 1-2

Slide 15 Services look identical on the outside

- same input
- same output
- same behavior

Inside ("under the hood") they can be very different. As shown here a service can be all custom code, or a COTS product, or wrapped legacy code, or a combination of the above, or a composite of other services.

Slide 16 Once the MITA Business Processes have been identified the next step is to develop the MITA Business Service. As part of the development of the Business Process an entry in the business capability maturity matrix was developed for each process (For a more detail discussion of the MITA CMM see the MITA whitepaper.). For each business processes non-level 1 (and optionally level 2) capability a single business service will be developed. This relationship is shown in the diagram.

Slide 17 Figure 4-3

Slide 18 The business process and capability are used to define the services business logic and service contract.

A services interface is derived from the business processes trigger and responses and is described using the Web Definition Language (WSDL)

Slide 19 Figure 4-5

Slide 20 Figure 4-6

Slide 21 Figure 1-2

Slide 22 Table 5-1

Slide 23 Table 5-1

Slide 24 Table 5-1

Slide 25 Table 5-1

Slide 26 Table 5-1

Slide 27 Table 5-1

Slide 28 Table 5-1

Slide 29 Table 5-1

Slide 30 Table 5-1

Slide 31 Figure 6-1

Slide 32 Figure 6-2

Slide 33 Figure 6-3

Slide 34 Table 6-2

Slide 35 Table 6-2

Slide 36 Figure 1-2

Slide 37 Figure 6-4

Slide 38 Figure 6-5

Slide 39 Figure 1-2

Slide 40 Figure 7-1

Slide 41 Figure 7-2

Slide 42 Figure 7-3

Slide 43 The traditional way systems were accessed and linked were all done in the proprietary formats of the individual vendor or developer or integrator. Interoperability and integration are difficult and complexity is very high. MITA addresses this issue through Access Channel Services. Access channel services have been defined to handle the specific device handling types. Initially, the focus has been on 5 different device types and the related technical services but the types of devices will evolve and change and new access channels will be added or eliminated. The unique features of each device will be handled by each access channel services. The Access Channel Routing and Management capability will have tie ins to the Security Boundary Protection Services and will access other Security and Privacy services that support the Single Sign On needs and will authenticate the users and set up the Role Based Access Control (RBAC) permission and pass a token [need to define so everyone has same understanding, what does it do for ESB, and business service example] to the Enterprise Service Bus. That token will be used with not only the ESB but will be passed to the business service area along with any correlated information – called a correlation set that relates the service message to the problem domain that is often called the context of the problem and context of the user. Correlation sets can be carried along entirely but more often a small token (or link) to the correlation set information is provided. The ESB or a technical service will have the capabilities for logging and gathering levels of tracking information for both exception handling, recovery, and security and privacy auditing.

Access Channels Services and ESB are designed to fit a range of interoperability issues across the business areas to provide cross-organization interoperability services. The Access Channel Services have been defined to handle the specific device types. Initially, the focus has been on 5 different device types and the related technical services but the types of devices will evolve and change and new access channels will be added or eliminated. An access channel provides the translation from the unique features of the device and technology such as the size of the screen and the layout of the keys to translate the message format to a common format handled by the Enterprise Service Bus. The Access Channel Routing and Management capability will have tie in to the Security Boundary Protection Services and will access other Security and Privacy services that support the Single Sign On needs. These services will authenticate the users and set up the Role Based Access Control (RBAC) permission. The next figure will show how the security token and correlation set token are passed to the Enterprise Service Bus to the business service and are logged for audit purposes. That token will be used with not only the ESB but will be passed to the business service area along with any correlated information – called a correlation set that relates the service message to the problem domain that is often called the context of the problem and context of the user. Correlation sets can be carried along entirely but more often a small token (or link) to the correlation set information is provided. The ESB or a technical service will have the capabilities for logging and gathering levels of tracking information for both exception handling, recovery, and security and privacy auditing.

Passing a large amount of information is a performance burden. A technique used to

compensate for this performance burden is to create a small token for providing the security and privacy rights information for specific sign on. The initial token is picked up from the boundary services as the message to enters the ESB. The user signs in and goes through an Authentication process (similar to eAuthentication a GSA provided government component) and role-based access control is verified. Additional information can be added to the token. For example, if the user is returning to previously uncompleted work correlation data added to the token could allow the user to start their were they left off.

Many organizations have Web Portals to facilitate access to their systems**.** A Web Portal that is service-enabled is called a Service Portal. The other major element of the Service Portal is to be the integrated manager of the human-side of workflow. The Service Portal can handle the set of work queues that are involved in each users role(s). One user may have a clear role and only need one Work Queue, while others may involve multiple assignments. Service Portals follow web service standards such as WS-RemotePortlet Standards(WSRMP). The services that the user can access provide a path between their work queues and other special areas such as alerting each representing a one end of the service end points and the business services represent the other end forming a service connection. The service end points are basicly a Universal Resource Identifier (URI) for the service user and service providers and this ability to connect in a standardized ways is one of the key uses of the Service Portal. WS-Addressing standards for the service end points will be used. The Service Portal is natural evolution of the web portal technology. It has new capabilities that enable it to interface with the other service infrastructure components. Some of the key capabilities is it supports web-browsers that understand web services and WSDL and sends outputs to other service elements with a Service Formated messages. The portal and actually portions of the portal are service end-points. A Service End Point is a Universal Resource Identifier(URI) pointer to the service provider and the service user as defined in WS-Addressing.

Slide 44 Figure 7-5

Slide 45 Service Management Engines manage the execution of the business service and technical services. They are mini-operating systems for services. The Service Engines execute the Service Contracts defined in Web Service Definition Language (WSDL) or the more advanced service composition and business process management languages. These service engines come in a wide range of sizes and shapes and support a range of capabilities. Different services will have different service behavior needs from very simple services to complex and composite services. Depending on the need the business service, it will use different orchestration and management of services provided by one of the seven different service engines:

Simple Services: consist of service specification with a service contract defined in Web Service Definition Language (WSDL) and a simple request of a service and response.

Workflow Queues: consist of services that are mainly performed by people with the routing of messages or cases to a specific worker or a group of first workers that handle that type of case. A queue of messages and cases as the work that needs action by a person or role. Each person will have a queue of work that they can handle.

Event Services: Will manage the delivery of Event Messages to a number of business services and people/roles/contexts that are interested in a condition and change or behavior of interest.

Business Process Execution Language (BPEL) engine with Request Response (RR) :

consist of the triggering of a Business Process defined in BPEL (WS-BPEL 2.0 Standard) using a triggered message in a simple request-response message pattern as defined in the WS-BPEL 2.0 standard. The business process will be executed and the result will be sent to the one or more locations identified in the Business Process Model.

BPEL with Workflow Extensions: consists of a combination of BPEL with its strong focus on automating human decisions and actions and the ability to integrate the workflow queuing and high levels of workflow management. A common bridge between BPEL and Workflow tools is being defined by the WFMC Standards group (Level 4)

BPEL Advanced: This engine includes more advanced BPEL features (Pub-Sub, Service Plus, Workflow,& Complex Eventing) are being proposed and should be considered but caution should be used on becoming "locked in" to a specific vendors implementation (Level 4)

Composite Application Services- are addressing the more comprehensive business process and the ability to handle transactions, people involvement and long running activities. The WS- Composite Application Framework standard is addressing these needs. (Level 4)

Products exist in each of the categories above. It is expected that more innovation will be in this area over the next few years and vendors will have "new" features that may be needed or may create incompatibilities. The Service Management engines are a key aspect of "designing and managing for change" that is a key part of the flexibility goal. It is expected that more capabilities will be defined and new patterns of business process and workflow will be defined and the structure is set up to be open to those changes. For example there are systems with not just one user but collaboration around the business process called the Human Interaction Management Systems and other Process Metric Management Systems and others with more built in decision support and reactivity. These capabilities may be level 4 or 5 in our technical capability structure.

Slide 46 For services to be delivered end to end there can be the single common set of service elements that all agree with the standards. There can be complete compatibility but that wouldn't address the changes and innovation that are needed. To live in this heterogeneous world we need some bridging technologies but they should be semi-automated and intelligent enough to handle many of the common interoperability elements. Two of the service elements are defined the Service Gateway and Service Mediators. Additional capabilities may be needed. Absolute compliance with standards is not realistic therefore we need bridging services to mediate those differences.

Service Gateway addresses external or cross-boundary compatibilities between enterprise service bus's. The Service Gateway and can interface with many different formats such as EDI Gateways or HIPAA Translators.

Service Mediators provide a common service contract and service message interface that can be translated to the specific vendor offerings. There may be three different products that have similar capabilities and all have a service interface but they are slightly different. The service mediator handles those differences.

Slide 47 Figure 7-8

Slide 48 Figure 7-9

Slide 49 Table 7-1

Slide 50 Figure 7-10

Slide 51 Figure 7-11

Slide 52 Table 7-2

Slide 53 Table 7-3

Slide 54 **Step1:** Business Service Connections involves defining those service end-points (providers and consumers) and defines first a Business Interoperability agreement which is an initial business contract between two business areas or across business organizations such as between departments within a State or between two or more government organizations such as between Medicaid and CDC over vaccines or with FDA on Adverse Drug Event Reporting. A Business Interoperability Agreement Template will be provided that relates a Business Process to the "partner link" (as defined within WS-BPEL) to another business area or collection of services even within another organization within the state or another agency the focus is on the collaboration needed to meet a common goal. The approach addresses both intra-organization interoperability and inter-organizational interoperability.

Step 2: Each business service selects the type of Service Management Engine that meets the service patterns and behaviors that it needs.

Step 3: The Service will be defined and registered with a UDDI 3 compliant registry that can be linked with other community registries. The registries will allow the semi-automated discovery and binding of service requests to specific service endpoints and provide the information needed to route with the service message format to the business and technical service endpoints. The meta data will include the definition of channels, partnerlinks that link between business process models in BPEL and the message that are exchanged, the service endpoints along with the Service Contracts defined in WSDL.(see the Data Management and Access Service sections for Interoperability Data Element Definitions that are related to each of the Web Service Standards elements

Step 4: Define the Service Message Format- the Enterprise Service Bus will use a generic data format and specific content formats will be defined and captured in a semi-formal template: Data Exchange and Sharing Interchange Template and more formally in a self-describing XML-based Information Exchange Package which includes both WSDL and XML-Schema though the I implementation may not send in the XML-format but in binary format that is more compact. These documents and their generated formats will allow for easy adaptation and semi-automated testing with tests derived from service contracts and business contracts and extended with additional tests developed testers. Test tools for end to end services are a critical aspects of service testing and incremental release of services.

Step 5: The Service Gateway will use the meta data from Step 2 establish the bindings and define the needs for service mediation between outside interfaces such as the EDI Gateway shown or as a link between other Enterprise Service Bus's. .

Step 6: Monitor Cross Services & Executive Recovery- as more services are integrated together there is a need to monitor the performance of these cross service capabilities and support the recovery of such capabilities. Exception reporting, performance measurement, and recovery are built into individual service-enabled products- these are

desirable features at level 3 but at level 4 and end to end activity management and recovery capability will be expected. The script defining the automated and manual steps to recover from failures are key elements of complete service solution.

Slide 55 Services can be invoked from three different sources:
Step 1a Invoke Service Authenticate and Correlate- represents the human (the user at the portal) invoking a service or re-invoking something that they had been previously doing but providing enough information to correlate it to a set of common activities and to start up where they left off. When the user starts up the services, there will be a sign-on and the person will be authenticated and the eAuthentication service will be called and a token established that notes the users roles and authorizations. A similar token will be established for the types of services the user will be working on by pointing to the work or processes and activities that ended on that the last session.
Step 1b Invoke from External Messages- Invoke Services-Correlate- a set of messages can initiate a set of services such as sending in batch messages for all transactions for the day. Batches of service requests will be managed by the series of threads that result in a stream of interactions. The enterprise service bus and service portal can handle multiple threads of interaction and can be configured based on the performance needs. A series of external messages individually or collectively from a partner organization or another agency will come through this path.
Step 1c Execute Business Process based on Service Mode and Engine- the third activation point are the business services themselves that can interface with one or more of the service engines that range from simple to complex and composite applications. This is a message that comes from a Business Service to another Business Service.
Step 2: Receive Message and Tokens- Route and Manage- the Enterprise Service Bus is a key linchpin between the different forms of services from the three major sources in step 1. The message are received and a token related to the service type (correlation set) and the security and privacy token are attached to the message. It is used for routing, managing the service flow with some of the services being more important and other message flow capabilities eg prioritization and alternative path routing depending on performance limits.
Step 3 Tracks Performance Limits and Fault Handling- the activity management capability will track performance limits and the assure that performance policies and agreements are not be violating and will address the specific fault handling related to given to end to end recovery and compensations that are needed to keep the quality of the services meeting the quality of service levels.

Slide 56 Figure 1-2

Slide 57 Figure 8-1

Slide 58 Table 8-1

Slide 59 Figure 8-3

Slide 60 Figure 1-2

Slide 61 Table 9-1

Slide 62 Table 9-1

Slide 63 Figure 9-1

Slide 64 Figure 10-1

Slide 65 Table 10-1

Slide 66 Table 10-1

Slide 67 Table 10-1

Slide 68 Figure 10-2

Slide 69 Table 10-2

Slide 70 Table 10-2

Slide 71 Table 10-2

7 - MITA Application Architecture

Slide 2	Figure 1-2
Slide 3	Table 7-5
Slide 4	Figure 7-12
Slide 5	Figure 7-13
Slide 6	Figure 7-14
Slide 7	Figure 7-15
Slide 8	Figure 7-16
Slide 9	Table 7-6
Slide 10	Figure 7-14
Slide 11	Table 7-7

8 – Influence of MITA on APDs/RFPs

Slide 3
- No timeframe specified
- FHA: Aligned with the FHA : interoperability, patient centric, data sharing
- Across enterprises,

Slide 4 The Toolkit replaces the current Certification Review manual
It transfers the review focus from the original 6+ subsystems to a business-orientation
It will incorporate MITA principles in the future
It creates Business Process certification review packages
(Multiple Checklists per Business Area)
Review packages are flexible in content combining SMM mandatory, industry recommended, and state-specific requirements

Slide 5 New Life Cycle

Slide 6
- Where are you now, Where do you want to be in the future?
- A thorough self-assessment will help states prepare their APD.
- Move from subsystem focus to business areas focus
- 8 Business Areas discusses in MITA presentations
- Synchronization of 2 projects still in process
- Self-Assessment will be updated on an on-going basis & will reflect changes – becomes baseline for project that occur due to scope changes, business requirement changes throughout project.

Slide 7
- CFR does not change. Prior Approval still in required.
- May need to develop new checklists & business areas to conform to state needs
- Advantages for a state to break out the cost by Business Area
- Better able to tell the story & sell the product to Senior Management & Legislature
- Service oriented architecture will result in easier maintenance, with plug & play component

Slide 8
- RFP will Contain MMIS Checklist Mapped to MITA Business areas
- State & vendor may need to create new checklists to map to possible new business areas as requirements are developed

Include in state unique requirements
- New business areas & new checklists will become part of the toolkit
- Goal of this process is that there are no surprises at the end of the project or missing at certification

Establish how checklists fit in today. Vendors should expect to See these new business processes in their RFP's.

Slide 9

Slide 12 **MITA CERTIFICATION LIFECYCLE**

Picture of where we want to go. This slide represents the MTA view were we expect to be.

State aligns its business processes to MITA
State assesses its current capability level for each business process using the MITA description, qualifications, and conformance criteria
State selects the future level of capability it expects to achieve for each business process