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Technical Management Strategy (TMS)

State Self-Assessment (SS-A)

**Medicaid Information Technology Architecture
(MITA) Version 3.0**

Healthcare IT Consulting

**MITA State Self-Assessments (MITA SS-A) for the
Medicaid Information Technology Architecture 3.0 Project**

Prepared for:

Arkansas Department of Human Services (DHS)

**Version 2.6
June 27, 2019**

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REVISION HISTORY

Version	Effective Date	Brief Description of Change	Affected Section(s)	Prepared By	Reviewed By	Approved By
1.0	11/16/2018	Draft		MITA Team		
1.1	12/10/2018	Incorporate comments/feedback from Eligibility Team Review		MITA Team		
2.0	01/14/2019	Incorporated final feedback from Stakeholders		MITA Team		
2.1	06/27/2019	Draft to include Phase 2		MITA Team		
2.2	08/02/2019	QA/QC Review		MITA Team		
2.3	09/03/2019	Comments from Stakeholder review		Stakeholders		
2.4	09/06/2019	Update document to address Stakeholder comments		MITA Team		
2.5	09/23/2019	Update to address final comments from Stakeholder		MITA Team		
2.6	09/30/2019	Signature approval		MITA Team		Stakeholders

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1 Executive Summary

The Arkansas Department of Human Services (DHS) (herein referred to collectively as DHS) tasked NTT Data Services (formally Cognosante) to conduct a Medicaid Information Technology Architecture (MITA) Version 3.0 State Self-Assessment (SS-A) for the state of Arkansas. The DHS SS-A process updates the 2013 MITA SS-A. This MITA SS-A is being completed in two parts: the first relates to eligibility, and the second incorporates the rest of the Medicaid Enterprise. This document represents both parts, with it combining the findings from both phases of the SS-A.

NTT Data Services developed this DHS Eligibility Technical Management Strategy (TMS) document as a necessary component of the Centers for Medicare & Medicaid Services (CMS) MITA SS-A, which is part of the Initiation and Planning phase of the Medicaid Certification Lifecycle (MECL) and the Medicaid Eligibility and Enrollment Toolkit (MEET).The information from DHS TMS feeds into the DHS Concept of Operations (COO) and 5-Year Roadmap, which are also components of the overall DHS MITA SS-A. Figure 1 shows the workflow of these documents as they relate to the MECL and Medicaid Eligibility and Enrollment Life Cycle (MEELC).
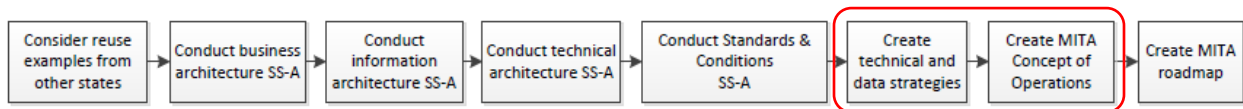

Figure 1: MECL SS-A Workflow

The CMS MITA Framework 3.0 recommends that TMS address the following strategy components relative to the DHS Executive Vision:

- Technical Governance
- Enterprise Architecture (EA) adoption
- Performance Management validation
- Customer Relationship Management
- Service Oriented Architecture (SOA) alignment
- Commercial Off-the-Shelf (COTS) usage
- Business Rules Management

The premise of the TMS Technical Management Strategy is twofold:

1. Leverage the foundational properties of the MITA Framework, such as:
   a) MITA 3.0 Business, Data, and Technical Architectures and Services
   b) MITA Maturity models
2. Expand the framework structure to emphasize a larger, multi-department Medicaid Enterprise perspective

A major DHS initiative is currently underway that will consolidate and replace all existing eligibility systems with a new Enterprise-wide eligibility system. This system, named ARIES, provides several opportunities to align technical strategies and architectures.

A MITA TMS identifies specific strategies that help facilitate MITA Maturity, improve MITA Business Areas and Process capabilities, and support the DHS Executive Vision, including future IT Service Initiatives. As

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part of the strategy in developing the proposal for the new ARIES eligibility solution, DHS identified a list of goals, visions, and guidelines for the technical implementation of the ARIES system. These visions complement the overarching goals typically presented in a TMS document.

The strategic goals outlined for this effort include:

- **Migration to a Person-centric Model.** This solution intends to provide services that are unique to each individual, rather than shoehorn a person into programs that may not be the best fit. This will allow service to the individual across multiple programs.

- **Data Standardization with Master Data Management (MDM).** The establishment of the ARIES platform will consolidate all eligibility data into a single source, as well as establish a MDM solution for managing the data. This will also allow much easier access to data for the purposes of analysis and reporting, as workers would no longer need to search data across multiple systems.

- **Leverage Technology.** It is the intent of DHS for this platform to be a web-based solution utilizing web services that will allow for a much greater ease of access for its clients. This will expand a client's ability to utilize self-service for their needs using the internet or smartphones.

- **Decrease Technology Risks and Costs.** DHS believes that a newer system will require less maintenance and less costs associated with that maintenance than the current and outdated legacy systems. Shared services based around new technology will drive down costs Enterprise-wide by allowing other agencies and business units the ability to leverage the shared service for similar business needs, rather than having separate systems.

- **Improve Operational Efficiency and Effectiveness.** Implementing web services will improve overall operational efficiency as opposed to running multiple, older systems. Web services allow for greater interoperability by being mostly platform-independent, more usability and reusability as many different business needs can be met with minimal custom-coding, and easier deployment by being accessible from virtually anywhere.

- **Establish an Integrated Platform to Support Future Needs.** It is intended for this project to utilize open technology architectures to allow for shared services and data across agencies.

To complete the TMS, as well as the MITA Information Assessment and Technical Assessment, NTT Data Services met with various State personnel to better understand the current technical environment and the overall strategy for technical improvements for the future. These meetings were held with the CIO, Deputy CIO, and various other Subject Matter Experts (SMEs) for the State Healthcare systems.

For better understanding of the strategic planning process, NTT Data Services met with the Chief Information Officer (CIO), the Deputy CIO, and Eligibility and Enrollment Framework (EEF) Technical Project Managers. These meetings were used to gather information regarding strategic planning in the Enterprise based around several TMS components, including technical governance, enterprise architecture adoption, technical performance management, customer relationship management, SOA, COTS products, and business rules management. In addition to the meetings held with State staff, existing documentation was also leveraged to better understand the strategic approach, including the ARIES Request for Proposal (RFP), which provided significant detail as to how DHS plans to move forward with technical and data management.

NTT Data Services developed this TMS in parallel with development of the DHS Data Management Strategy (DMS) document. The DMS is a separate deliverable but shares the same methodology, approach, and structure.

- The DMS focuses on the data management processes, techniques, and products needed to achieve optimal sharing of Medicaid Enterprise information.

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- The TMS focuses on the technologies needed to achieve optimal sharing of the Medicaid Enterprise services and information.

The Arkansas TMS Audience

The primary audience for the MITA TMS is CMS, along with the Arkansas Medicaid executives and lead architects. In this document, the Medicaid Enterprise audience is defined as DHS, included in the following diagram: (Figure 2)
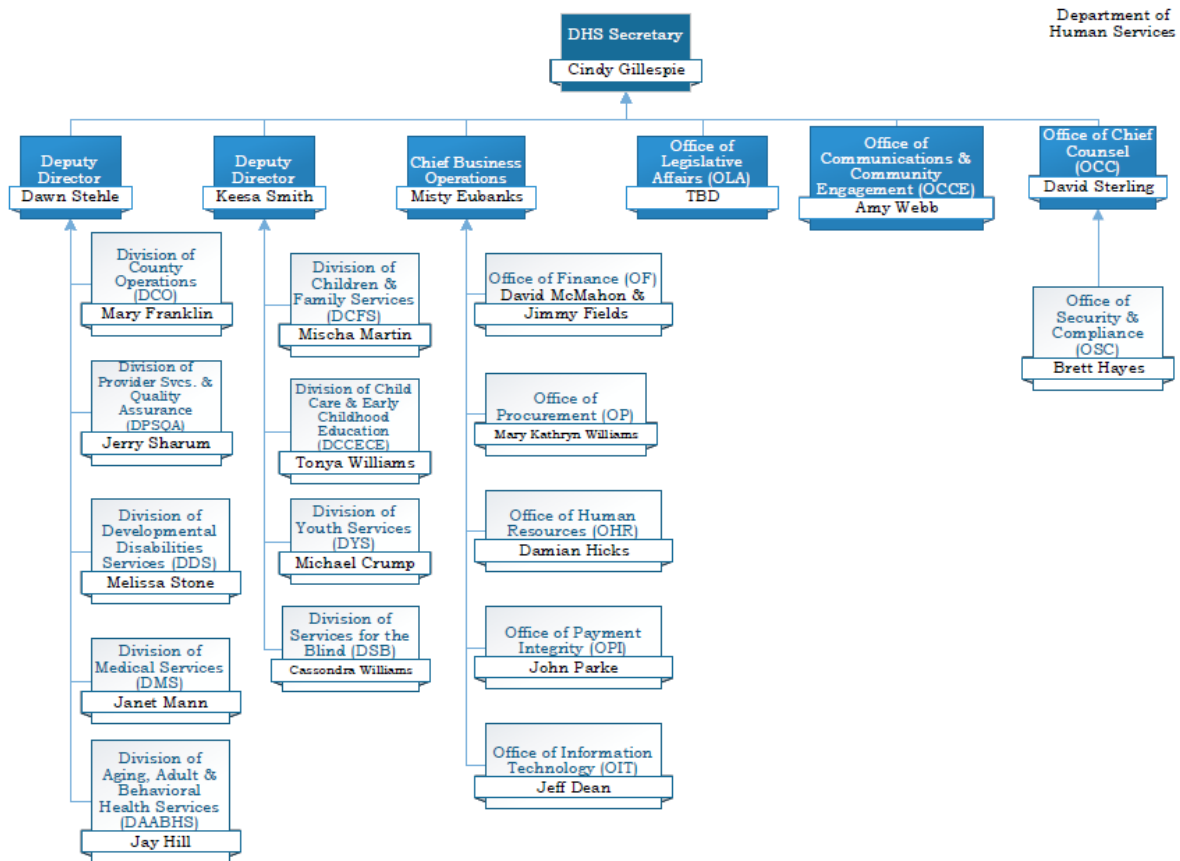
Figure 2 : DHS Organization Chart

These departments/agencies can impact the DHS Medicaid Business Processes, MITA Maturity, Concept of Operations (COO), and 5-Year Roadmap.

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2 TMS Introduction

The Technical Architecture section of the CMS MITA Framework 3.0 requires a Technical Management Strategy, as shown in Figure 3. With the release of the CMS Medicaid Enterprise Certification Toolkit (MECT) 2.3, the TMS is an artifact that states must produce as part of the MITA Self-Assessment. In addition to the TMS, a Data Management Strategy and MITA Concept of Operations must also be produced as part of the MITA SS-A.
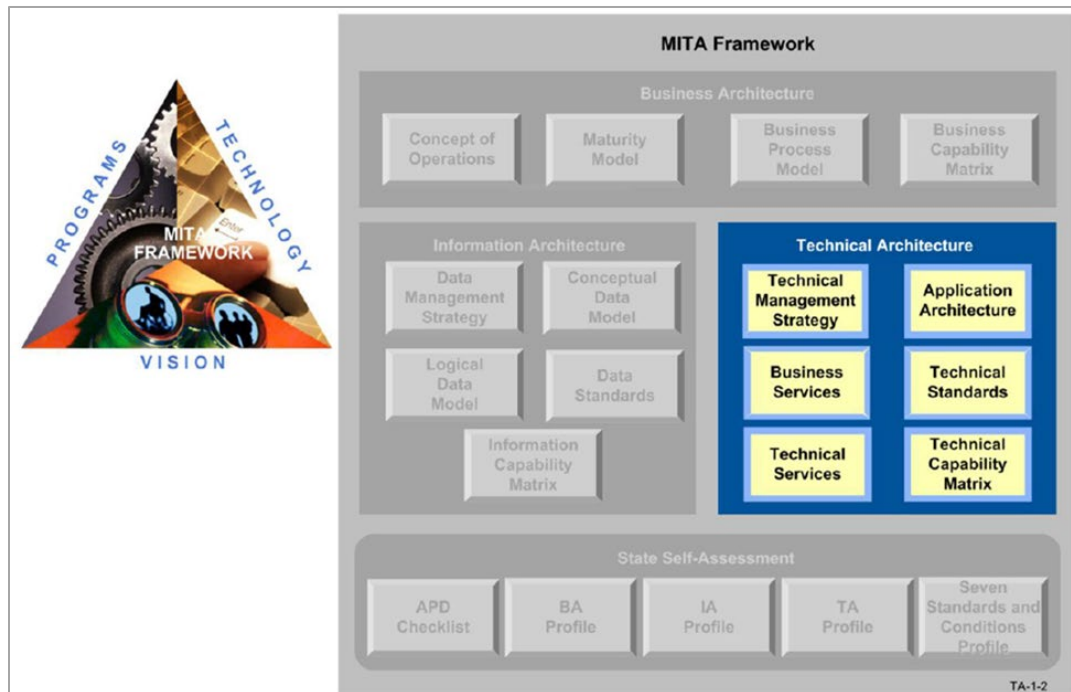

Figure 3: TMS in the Context of the MITA Framework

2.1 TMS Overview

The purpose of the TMS is to document the technologies needed to achieve optimal sharing of State Medicaid Enterprise services and information. The Medicaid Enterprise encompasses the systems and business functions where federal matching funds apply that are influenced by MITA. The premise is to leverage the foundational properties of the previous versions of the MITA Framework (e.g., three architectures, SOA, business and technical services, and maturity models) and expand the framework structure to emphasize a Health and Human Services (HHS) enterprise perspective.

The TMS covers initiatives underway in the DHS, Human Services programs, and the entire Medicaid Enterprise. The Technical Services strategies are designed to improve the core Medicaid functions and assist in providing shared services and interoperability throughout the entire Enterprise. The TMS is a guide in identifying key challenges the State faces in advancing its technical capabilities.

CMS documentation regarding the TMS and what it entails is provided in the MITA 3.0, Part III, Chapter 2, Technical Management Strategy document.

2.2 TMS Scope

The scope of the TMS extends beyond what MITA generally includes. In addition to supporting the MITA Framework, the TMS is expanded to include the entire state Medicaid environment. The TMS addresses common Medicaid services and other high-level information needed by the extended Medicaid Enterprise. This includes systems that are used not only by Medicaid but other State agencies as well.

Three main points outline the scope of the TMS as described in the MITA Framework, Part III, Chapter 2, Technical Management Strategy:

1. The TMS is technology, location, and organization neutral. The State is responsible for adding its own strategies and organizations to the scope of the TMS.

2. The TMS should address common services that are shared by all entities within the Medicaid Enterprise environment. This includes shared systems, modules, and an Enterprise Service Bus (ESB), where applicable.

3. The TMS has extended responsibility to the Health Information Exchange (HIE), including any possible cloud-computing or extended claims processing, information retrieval, or eligibility determination.

2.3 CMS TMS Requirements and Purpose

The TMS provides an approach to validate the current Medicaid Enterprise technical environment in a way that demonstrates future planning. This technical landscape can include any number of initiatives, standards, organizations, or enabling technologies. Anything identified in the TMS focuses on meeting business needs and providing business value above all else. Business value evolves as standards, data sharing, and technology improve, and the TMS will also evolve to meet those business needs.

The TMS identifies enabling technologies to help facilitate meeting business goals by technical strategy in the following key areas. The MITA Framework 3.0, Part III, Chapter 2, Technical Management Strategy provides additional information about these categories.

Technical Service Governance
The governance process establishes standards that support enterprise modeling capabilities and provides a means for making enterprise-wide decisions. It provides the capability to determine ownership, determine data and technical standard adoption processes, address data integrity, define processes for business process development, and establish a mechanism for arbitrating differences.

Enterprise Architecture Adoption
Enterprise Architecture (EA) standardizes information across the departments involved in the enterprise and aligns with the DMS to establish data standards. The EA establishes data standards that support enterprise-modeling capabilities. Its benefits include increased model effectiveness, data sharing, and enterprise knowledge.

Performance Management Strategy
The MITA Framework supports the requirement for DHS to define and conduct system performance monitoring, including:

*   Ensure quality, integrity, accuracy, and usefulness of functionality and information

*   Provide timely information transaction processing, including maximizing real-time determinations and decisions

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Customer Relationship Management (CRM)

CRM describes any plans to organize, automate, and synchronize business processes to meet the needs of the stakeholders. In the MITA Framework, this concept focuses on member and provider access to Electronic Health Record (EHR) data and individual access to health insurance alternatives. Some areas that require CRM include:

- EHR – An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that authorized clinicians and staff across more than one health care organization can create, manage, and consult

- Health Information Exchange (HIE) – The electronic movement of health-related information among organizations according to nationally recognized standards

SOA Alignment

This area describes the current SOA environment of the enterprise and how the State plans on implementing SOA throughout the enterprise.

- MITA requires the use of a modular, flexible approach to systems development. Modularity is the process of breaking down systems requirements into component parts.

- Services perform either business or technical functions within the MITA Framework.

- Business services, such as Process Claim, Manage Provider Information, and Enroll Provider, perform business processes.

- Technical services, such as Portal Service (Access Services), Forms Management, Content Management, and EDI Gateway services, perform high-level technical services shared by many business services.

COTS Usage

This area describes any current or potential future use of COTS products to obtain the business goals of the enterprise. COTS products standardize applications across the department or State. COTS usage establishes a proven application with a known level of testing and can undergo further testing much easier than a custom-made solution. Its benefits include increased model effectiveness, data sharing, ease of training, enterprise knowledge, and decreased resource expenditures.

Business Rules Management

Business Rules Management describes any current or future use of rules engines to ensure consistent logic is applied throughout all applicable systems involved in the business of the enterprise. MITA requires the separation of business rules from core programming, as well as the availability of business rules in both human and machine-readable formats. Business rules engines empower the business users of the Medicaid systems.

Analysts simplify business rules into business-oriented statements that encode business decisions. These rules are often in an if/then conditional form, but they also offer matching algorithms that determine what rules to run and in what order. Stakeholders investigate several considerations for deploying a business rules engine, such as how to integrate business process management, incorporate filters, provide conflict resolution, and assist with workflow.

3 DHS TMS Assessment

This section describes the approach used in conducting the DHS TMS Assessment and an overview of existing DHS systems.

The information in this section identifies the gaps and opportunities in the adoption of the MITA SS-A DHS Technical Management Strategy.

3.1   DHS TMS Assessment Approach

Three sources of information were used to develop the TMS and DMS:

- Existing system documentation, including RFPs for proposed systems
- Interview sessions
- Enterprise Architecture review board meetings

The assessment approach includes the following activities:

1. Identify systems that support DHS Medicaid Operations and Subject Matter Experts (SMEs)
2. Conduct MITA training for SMEs
3. Review existing documentation for systems deemed in scope for the MITA SS-A
4. Schedule system interview sessions with identified SMEs
5. Compile and analyze system responses
6. Determine data and technology capabilities and MITA Maturity scores
7. Analyze existing TMS environment
8. Generate TMS Deliverable

3.2   Current DHS TMS Analysis

This section provides an overview of the current DHS systems. NTT Data Services assessed seven systems in the DHS MITA SS-A and engaged DHS business and system experts to gather system business and technical interface information. The results of the technical assessments were used to complete the Information Architecture (IA) and Technical Architecture (TA) components of the DHS MITA SS-A.

The DHS IT Asset Diagram shown in Figure 4 illustrates the current DHS technical architecture as documented in the MITA SS-A Technical Assessment. Not all of the systems shown in the diagram were assessed in the SS-A.
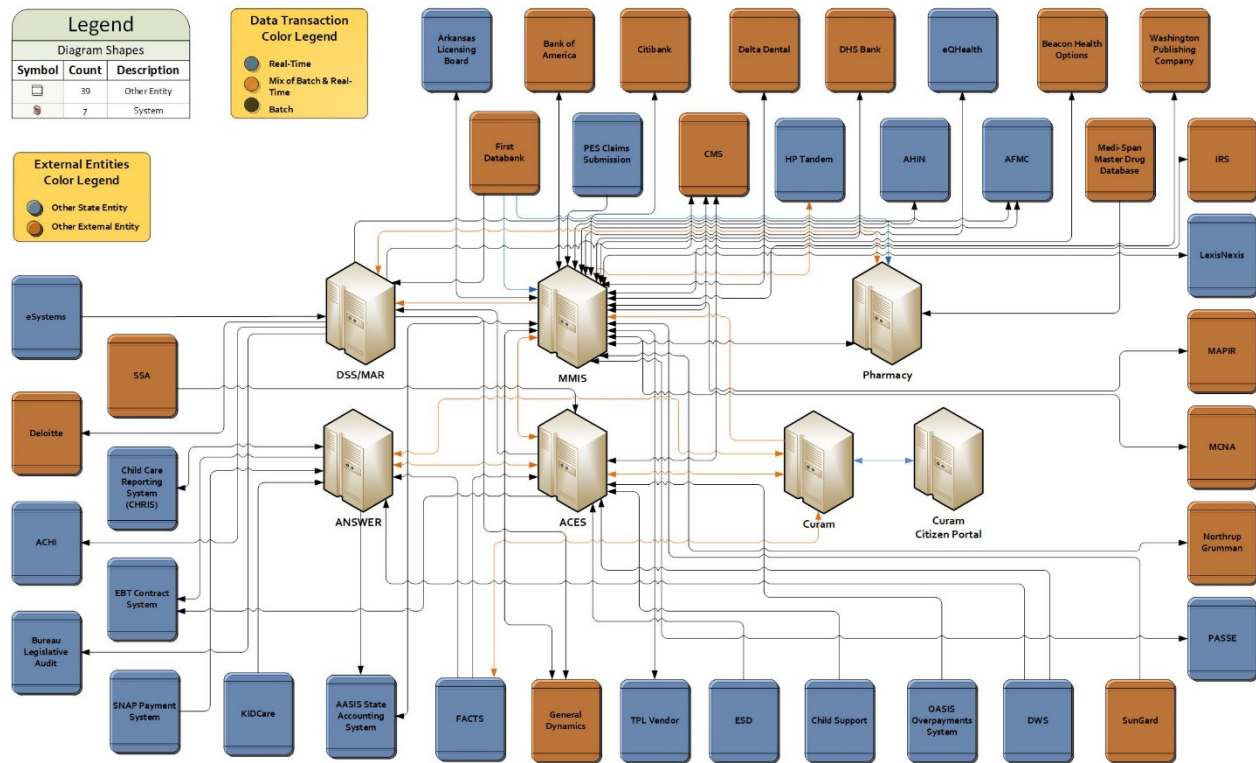
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Figure 4: DHS 2017 MITA SS-A IT Asset Diagram

Overall, DHS technical maturity As Is capabilities are at Level 1. Two of the major systems that have a role in eligibility determination, ACES and ANSWER, are legacy systems that exist on a mainframe and require extensive coding for updates or changes. However, these systems will be replaced by the proposed integrated eligibility system, which should substantially improve in maturity.

The following list provides an overview of existing TMS capabilities:

- Access and Delivery technical service classifications are mostly a Level 1.

    - ACES and ANSWER have mostly manual access, business intelligence, performance measurements, and security procedures.

    - Cúram, being a COTS product that integrates much of this functionality, is more mature in most of these capabilities.

    - The MMIS, DSS/MAR, and Pharmacy systems are generally more mature in these capabilities as well with a mix of Level 2s and 3s.

- Intermediary and Interface technical service classifications are mostly a Level 1.

    - ACES and ANSWER have hard-coded interfaces to other systems and little flexibility for expanding its services since they are not modular and are not comprised of web services.

    - Cúram, being a server-based COTS product, is more mature in these capabilities. Like Access and Delivery listed above.

    - MMIS, DSS/MAR, and Pharmacy systems are generally more mature in these capabilities as well with a mix of Level 2s and 3s.

- Integration and Utility technical service classifications are a mix of Level 1s and Level 2s.

- ACES and ANSWER. Interfaces are limited by technology and there are no enterprise-wide standards for data, but rules are executed in real-time.

- The Cúram COTS product meets a Level 2 for these capabilities.

- The MMIS, DSS/MAR, and Pharmacy systems meet at least a Level 2 for all capabilities within Integration and Utility technical service area.

3.3   Medicaid Agency Projects and Initiatives – IT Service Programs

NTT Data Services reviewed various documents that provided an insight into many IT Service Programs in several agencies and/or commissions. The main document reviewed was the ARIES RFP, which had a lot of detail regarding the current state of DHS, the current systems, and the technology transformation plan for the future.

Cross-agency collaboration and IT Services Support are officially provided by the State Department of Information Services (DIS), which is the information technology solutions provider for the state of Arkansas. The DIS focuses on five main areas:

- Centralizing the data center

- Technical management services

- Networking services

- Storage and backup

- Telephony/voice services.

DIS provides all common technology and infrastructure for technical services to the DHS, including networks, servers, data centers, and disaster recovery, aside from systems that are outsourced to cloud vendors.

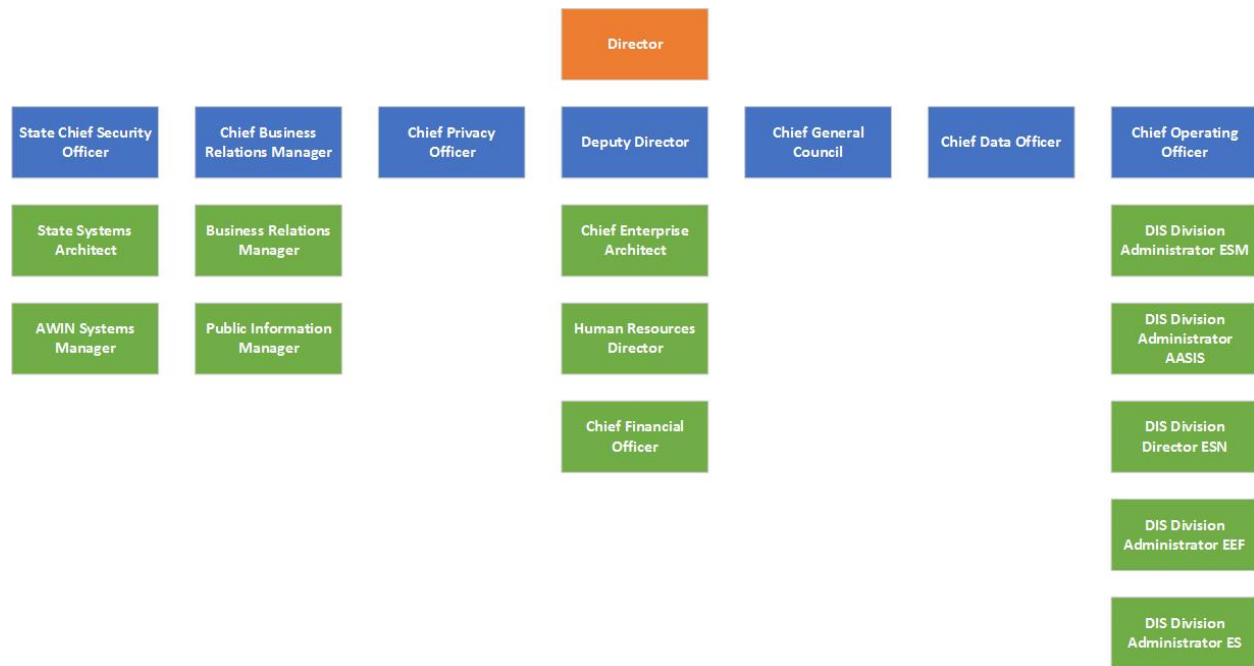Figure 5 displays the current organizational structure of DIS.

Figure 5: DIS Organizational Chart

The biggest initiative underway, the ARIES implementation, is led by DHS in partnership with Deloitte. Many processes of this procurement will impact the Enterprise, mostly regarding eligibility data sharing and reporting. This new system will also need access to system data in other departments/agencies.

The ARIES RFP lists several departments that will be impacted by the ARIES implementation and what those impacts will be. That list is as follows:

- **Department of Human Services (DHS)** — ARIES Solution will serve as the primary eligibility and benefits management solution for DHS programs through the use of an "integrated application" for the screening, application and determination processes, as well as benefits management for the non-healthcare programs.

- **Department of Workforce Services (DWS)** — ARIES Solution, through the "integrated application" capabilities, will be used to determine eligibility for Temporary Assistance to Needy Families (TANF)/Transitional Employment Assistance (TEA).

- **Arkansas Department of Health (ADH)** — ARIES Solution will collect data through an "integrated application" approach, and pass that data on for Women, Infants, and Children (WIC) benefits – as an additional online channel to the State's WIC benefits and services.

- **Department of Finance and Administration (DFA)** — ARIES Solution, through the "integrated application" approach, will gather and transmit key child support related data to the Office of Child Support Enforcement (OCSE).

- **Department of Veterans Affairs (ADVA)** — ARIES Solution, through the "integrated application" approach, will provide a screening for ADVA benefits – as an additional online channel to the State's VA benefits.

- **Department of Information Services (DIS)** — As the information technology agency for the State, DIS will provide the infrastructure on which the ARIES Solution will run and provide oversight and support to all aspects of the ARIES.

Other initiatives underway that are listed in the MITA Roadmap that could have implications in the TMS in regard to technical strategies include:

- **Comprehensive Child Welfare Information System (CCWIS)** – CCWIS will be a case management system for child welfare programs. This system is intended to replace the older Children's Reporting and Information System (CHRIS) with the goals of promoting data sharing with other agencies and implementing data quality plans.

- **Juvenile Justice Information System** – This system is intended to replace the older juvenile justice case management system.

- **Enterprise Business Case Management System** – The Business Case Management System (BCMS) is intended to support operational business needs throughout the Enterprise. This will be achieved through information management and automated workflows.

- **Portal Enhancements** – Both the member portal and provider portals are intended to be enhanced with extended functionality offered to both members and providers.

- **Data Management** – There are several planned projects for the enhancement of data management capabilities, including data inventories, data analytics, data quality improvements, and consolidated data repositories. These initiatives are more focused in the DMS, but may have some technical implications as well, such as how the data is stored and how the data is routed between systems.

- **MMIS System Enhancements** – There are over 150 requirements that were deferred when the MMIS was implemented. DHS would like to start going through those deferred requirements and "unlock" them in order to provide enhanced functionality to the current MMIS.

- **DHS Website** – This would replace the current website with a much more robust website featuring more content and a complete redesign.

- **Shared Services Enhancements** – Shared services are a big component of MITA, and Arkansas is currently planning several projects to enhance its shared services throughout the Enterprise. These include:

  - **Workflow Management** – JIRA is a COTS product that can be used for issue tracking, project management, and workflow management. QuickBase is another case management COTS product that is being considered.

  - **E-Procurement** – DFA is looking to obtain a cloud-based Software as a Service (SaaS) solution for handling procurements electronically. This solution could be beneficial on the Enterprise level and should be viewed with the overall TMS in mind.

  - **Enterprise Service Bus (ESB)** – The implementation of ARIES will also include an ESB component. Originally this was going to be implemented by the winning vendor (Deloitte), but recently it was decided to procure an ESB separately.

  - **Active Directory Enhancements** – This project is intended to implement Single Sign-On (SSO) functionality.

  - **Security Enhancements** – Closely tied to the SSO initiative above, the State would like to move towards 2-factor authentication for logging into system portals.

  - **Amazon E-Procurement** – This project is to procure and implement Amazon Web Services (AWS) in order to better centralize web services and data integration.

  - **Integrated Ticketing System** – Currently, each system has its own ticketing system for tracking issues and tech support. The State would like to consolidate the issue tracking to a single system to better streamline the issue resolution process.

  - **HIT/HITECH Integration** – Interface with the HIE to receive clinical data.

- **Dashboards** – Working with the winning ARIES vendor, Deloitte, enhanced dashboard functionality is being developed for multiple systems to better track and display system performance metrics.

- **Enterprise File Transfers** – The State is looking at improving the way files are transferred across the Enterprise. Currently MOVEit and Accellion are used for file transfers. The State would like a single file sharing platform to, at the very least, replace MOVEit.

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4 DHS Technical Management Strategy

This section presents the DHS MITA Technical Management Strategy and addresses the application design and technology opportunities available for the DHS. This takes into consideration the existing operational and technical DHS environment. Recommendations align with the CMS MITA Maturity Models, Seven Standards and Conditions, and the MITA 5-Year Roadmap.

4.1   Technical Governance

Technical Governance standardizes services across the systems involved in the Enterprise. It should be noted that Technical Governance is not the same as Data Governance, which is covered in the DHS DMS document.

The governance process establishes standards that support enterprise modeling capabilities and provides a means for making enterprise-wide decisions. It provides the capability to determine ownership, determine data and technical standard adoption processes, address data integrity, define processes for business process development, and establish a mechanism for arbitrating differences.

As part of the ARIES RFP, DHS will establish a governance group to oversee the strategic direction, scope, and management of the ARIES project. This governance group will be composed of senior management personnel from DHS and will meet regularly to ensure the project's vision is realized. As a subset of this, an architecture and technology governance body comprised of both State and vendor staff is expected to be established.

The State staff will be responsible for developing the lead architectural governance with which the vendor must comply, reviewing any potential re-use of technology, and reviewing architecture designs to ensure compliance with State standards. The vendor responsibilities include development of the actual system architecture, along with any documentation, and ensuring that all system designs and interfaces continue to work as intended.

The ARIES project will be leveraged to establish a multi-agency enterprise architecture. This will consolidate the resources needed to have separate governance boards for each agency and help ensure that a standardized approach to system development and integration would be followed throughout each agency. It would also ensure that the ARIES system specifically will meet the technology needs of the multiple agencies it is intended to serve. This would require each agency to have representation assigned to the governance board beyond what is outlined in the current RFP.

There has also been an establishment of a larger-scope technical review board that serves as an overall executive review board for the DHS. This Enterprise Architecture review board meets weekly or bi-weekly and is comprised of many technical and data focused state staff, including the CIO and Deputy CIO. These meetings comprise of a variety of technical and data related topics including how best to structure the establishment of data and technical governance, the technical aspects of the ARIES implementation, various COTS products to procure and enhance, and other technical and IT related topics. The establishment of this review board will ensure that the different agencies throughout the enterprise are on the same page when it comes to technical and data issues.

In addition to this review board, a plan is also underway to start analyzing, discussing, and documenting the overall IT infrastructure on a regular basis to begin a modernization of aging data centers and platform infrastructure. This effort will also help identify which aspects of the various IT platforms can be reused or leveraged in other areas throughout the Enterprise to improve efficiency and decrease maintenance costs of the IT infrastructure.

4.2   Enterprise Architecture Adoption

DHS intends to leverage the ARIES platform as an Enterprise-wide core architecture that aligns the departments to the overall State vision. DHS believes that developing an Enterprise approach to IT will establish consistent data standards for hardware, software, interoperability, data and technical governance, management and operations, and other procedures for managing technology.

Figure 6 displays a conceptual Integrated DHS Platform approach that was included in the ARIES RFP. DHS's intent is to develop these components with a SOA approach, providing common business and technical services to multiple agencies. This includes a common access portal for all health services, standardized eligibility platform to enroll members into all applicable healthcare programs, and a master data management (MDM) component that is intended to standardize data across multiple agencies.
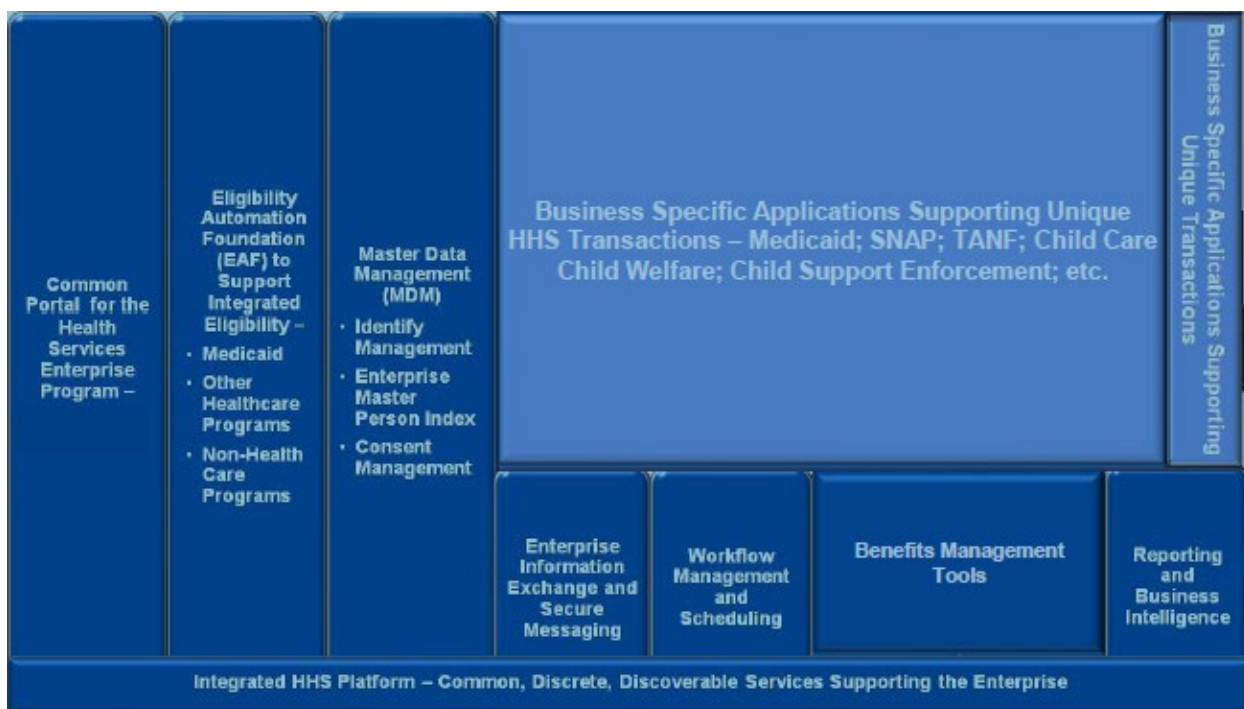
Figure 6: Integrated DHS Platform

Over time, the DHS will migrate its legacy eligibility systems to the ARIES Enterprise platform. DHS has assessed which components will currently best fit the functionality of the proposed ARIES solution. Preferred technologies associated with the planned Enterprise Architecture are included in the RFP, including both mandatory and preferred technologies.

DHS suggests Deloitte leverage the current EEF platform infrastructure and build the ARIES platform with whichever components are lacking. The planned architecture solution that DHS would like to see includes the following seven layers:

- **Presentation Layer** – This includes any access portals for the users

- **Business Services Layer** – This includes case management functionality and alerts

- **Application Infrastructure Layer** – This includes a separate rules engine, workflow processes, and other business process management services

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- **Enterprise Integration Layer** – This includes the ESB, data integration, and Master Data Management (MDM)

- **Data Layer** – This includes transaction and analytical processing, as well as business intelligence

- **Security, Privacy, and Consent Layer** – This includes identity and access management

- **Platform and Infrastructure Layer** – This includes the platform, server hardware, data center, and physical networking architecture that the solution will use

Section 5 of this report provides a conceptual model of this platform infrastructure.

In tandem with the development of the ARIES Enterprise Architecture platform, other enterprise management data strategies are being discussed and developed by the state. As mentioned above in Section 4.1: Technical Governance, there is an Enterprise Architecture Review Board that meets on a regular basis to work on and establish technical and data governance, as well as other technical and data related topics. Regarding Enterprise Architecture, the following strategies are currently being planned to establish better data policies throughout the Enterprise. Many of these fit better in the DMS, but Enterprise Architecture Adoption has a direct synergy between the data management of the Enterprise and the required technical infrastructures to carry out the data management policies:

- **Data Governance Board** – Covered in more detail in the DMS, the Data Governance Board will oversee policy development and oversight on data management.

- **Data Quality Initiative** – This is a big initiative that is aiming to improve the quality of the data that is being used to support the business. This will require technology and will overall be a component of the Data Governance Board. This will start with improving the quality of the T-MSIS data but will eventually be tied to ARIES and the greater Enterprise as a whole. An APD was developed to address this and has recently been approved.

- **Data Inventory and Mapping** – Currently underway, this project's goal is to create a comprehensive inventory of the data used throughout the Enterprise. This includes creating data dictionaries, data definitions, defining stewards, and determining systems of record. This requires technology to be sustainable. Data stewards and definitions are a component of the Data Governance Board. This too requires technology to be sustainable.

- **Data Models** – This will involve modeling out all the data with attributes based on the results of the data inventory and mapping with oversight of the Data Governance Board. This includes the development of Conceptual Data Models (CDM) and Logical Data Models (LDM).

- **Data Platform** – More in tune with the TMS Enterprise Architecture Adoption than the other data bullet points listed here, the Data Platform will involve designing and developing the infrastructure to store and route the data where it needs to go. This will involve developing a centralized, robust data hub with an Enterprise Landing Zone and Data Lake.

- **Consolidated Data Repository** – The State would like all data from all vendors to filter into one centralized data warehouse. This relates to the Data Platform listed above with the possible Enterprise Landing Zone, Enterprise Data Lake, and Enterprise Data Warehouse.

4.3 Performance Management Validation

The vendor's Project Management and Monitoring Plan defined in the ARIES RFP includes Performance Management. The Project Management and Monitoring Plan will outline all activities the vendor will undertake to manage and lead the implementation, operations, and maintenance of the system throughout the course of the system's lifecycle.

The Performance Management portion of the Plan will cover how the vendor plans on monitoring, tracking, and reporting on baseline system metrics for each performance area for which the system will be

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used. More details can be found in the Template T-10 Implementation Requirements Traceability Matrix document attached to the ARIES RFP.

Being that Deloitte was the winning vendor for ARIES and is developing performance monitoring software with dashboards for ARIES, they have also been tasked with helping develop performance monitoring dashboards for other systems throughout the Enterprise as well.

The ticketing systems used by the various vendors to track system issues and performance have been causing issues because they are too siloed to each vendor and there is no way for the state to track them all. Workers might submit a ticket for a system issue to the wrong vendor and doing so will not get the ticket routed to the correct vendor. To improve this, DHS is working on a plan to develop an Integrated Vendor Ticketing System (ITSM) which will bring all vendors and their systems under one ticketing system. This will improve system performance management by substantially reducing the time it takes to resolve system ticket issues due to inefficient or nonexistent re-routing.

DHS wants to ensure that all end users have high satisfaction with the products, so Service Level Agreements (SLAs) should be developed that ensure user needs are being met. Currently, Key Performance Indicators (KPIs) set by CMS are met by developing SLAs around those KPIs.

4.4   Customer Relationship Management

Currently, Arkansas uses the document management system DocuShare, which is a COTS product by Xerox. As of now, it appears that DocuShare will most likely still be the document management system going forward as ARIES will also be leveraging it. The current call center vendor (CTMS) uses Salesforce as their CRM.

A proposed new CRM solution falls under the Business Services Layer mentioned in Section 4.1: Enterprise Architecture, of which DHS has no preference for preferred technology or solutions. The ARIES CRM will have workflow capabilities and other functionality such as scheduling meetings.

Currently there are no plans to leverage the ARIES CRM solution as an Enterprise-wide workflow manager because CRMs are so tied to the individual vendors and agencies. However, DHS has an opportunity to leverage the potential new CRM brought by the ARIES project by inviting other agencies to see if it would be an upgraded workflow solution for them that they could leverage.

One of the main goals of CRM as it pertains to the MITA Framework 3.0 TMS is providing member and provider access to EHRs through interfacing to an HIE. The State is currently in the planning stages of interfacing to the HIE to receive clinical data. There is also a project in process for replacing as much paper procedures as possible and replacing them with an EHR system for the Arkansas State Hospital.

4.5   Service Oriented Architecture (SOA) Alignment

SOA is a design principle that employs business functions and selected technical functions using documented interfaces. MITA requires the use of a modular, flexible approach to systems development. Services perform either business or technical functions within the MITA Framework.

- Business services such as Process Claim, Manage Provider Information, and Enroll Provider perform business processes.

- Services such as Portal Service, Forms Management, Content Management, and EDI Gateway services perform high-level technical services shared by many business services.

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- An Enterprise Service Bus (ESB) is a service layer that provides the capability for services to interoperate and act as both clients and services. It operates between the business applications and enables the communication between them. The ESB provides the following functions:

    - **Message Management** – This consists of reliable delivery of messages between services and built-in recovery.

    - **Message Translation** – This involves converting all messages between services to a common format and converting the common format to the application-specific format within a service. To ensure interoperability, the message format uses XML standards.

    - **Service Coordination** – This consists of orchestrating the execution of an end-to-end business process through all required services on the ESB. Services adapt to changes in environment and support a standards-based set of service management capabilities.

DHS envisions the ARIES architecture to be a SOA-based Enterprise platform. Five principles were identified for the planned ARIES regarding SOA:

- **Modular** –ARIES will consist of service providers or service consumers, with modules existing at various levels of complexity.

- **Distributable** – The modules that compose ARIES will have the capability to be hosted on disparate systems and communicate with each other in real-time.

- **Defined Interfaces** – Each module and interface that compose ARIES will be documented and defined in a registry with Web Services Description Language (WSDL) to make them easily accessible to system developers.

- **Swappable Modules** – As is the case with most modular SOA applications, ARIES will be designed with loose coupling services that can be swapped out and changed or enhanced without disrupting the other modules and services. Implementation of a module is kept separate from the interface data.

- **Shareable Service Provider Modules** – The modules that provide services will be deployed in a way that enables them to be invoked by multiple service consumer modules that have partially related business activities. Not all services are expected to be shared, but the capability will be there.

As for the ESB strategy, originally the selected ARIES vendor was going to bring its own ESB solution during the development of the ARIES platform, from which the state could possibly leverage for other areas. Recently, that idea was scrapped in place of procuring IBM's Product Suite on the recommendation of Deloitte. Until the new ESB is implemented, the current legacy Redhat Jboss ESB will remain in place.

4.6 COTS Usage

A key consideration of the MITA TMS is COTS usage. COTS products standardize applications across a department or state. COTS usage establishes a proven application with a known level of testing and can undergo further testing much easier than a custom-made solution. Its benefits increase model effectiveness, data sharing, ease of training, and enterprise knowledge and decrease resource expenditures.

A major benefit of a COTS product is the ability to procure a functional system that does not require development or major enhancements to implement. However, COTS usage may not result in the realization of benefits if the COTS product is modified to the degree that unique versions are configured. It is also noteworthy that vendors selling COTS products may try to use the "off-the-shelf" mentality as a way to avoid meeting RFP requirements. The State should be careful to add protection in RFP language when procuring a COTS product to ensure the needs and requirements will be met.

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The software solutions currently being used in Arkansas contains a combination of COTS products, configurable applications, and other SOA integrations. Cúram is a major COTS product that is used throughout the enterprise and contains a large majority (around 80%) of client data. Cúram is used for many aspects of eligibility determination and case management.

Cúram will be phased out once the ARIES implementation is complete, but there are still many COTS products that the state uses to meet the needs of its business purposes:

- Cognos for business intelligence and reporting

- Informatica for data management

- DocuShare for content management

- Redhat JBoss Fuse ESB for a system integration Enterprise Service Bus

- JIRA for workflow management

In addition to the above listed COTS products, the state is considering expanding certain existing COTS products, or procuring new ones. That list includes:

- Informatica for data management

- DocuShare for content management

- JIRA for workflow management

- IBM for ESB

- Salesforce for case management

- Amazon Web Services for data integration

- Active Directory for Single Sign-On

- QuickBase for application development and general case management

- MoveIt for enterprise file transfers

While some thought has been given to standardizing COTS usage throughout the Enterprise, there is no policy that addresses it at this time. Currently, CMS guidelines are used to procure COTS products and services.

4.7   Business Rules Management

Since the Medicaid environment frequently deals with changing legal regulations and mandated policies, the use of rules engines is an effective way to make rapid changes to the logic of the system. The main benefit a separate rules engine provides is not having to re-code within the application itself when new business rules are introduced, or existing rules are changed.

MITA requires the separation of business rules from core programming, as well as the availability of business rules in both human and machine-readable formats. States use business rules engines to separate business rules from core programming and provide information about the change control process that manages development and implementation of business rules. States can accommodate changes to business rules on a regular schedule and on an emergency basis.

The current MMIS and Pharmacy systems have separate rules engines as opposed to having rules hard-coded. As part of the enterprise architecture the State requested in the ARIES proposal, the Application

and Infrastructure Services Layer of the proposed architecture is intended to include a business rules engine.

Currently there is no policy on implementing Enterprise-wide business rules engines as each vendor has their own built into their products. Having a more universal rules engine that can be leveraged across the State is something the DHS should consider. DHS has an opportunity to evaluate and potentially leverage the business rules engine that comes with the ARIES across multiple agencies and systems. Proper Enterprise-wide business rules management will not be addressed until the State's technical governance is more established.

One thing that is being considered enterprise-wide is better documentation of the rules processes. This would allow for an easier adoption of business rules for any potential future rules engine.

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5 Enterprise-Wide ARIES Platform

With the proposal for the ARIES platform, it is DHS's intent to create an Enterprise-wide solution and platform for sharing common services that can be leveraged throughout the Enterprise. It is intended for the technical components and modules to be reusable by other agencies as it fits their business needs for reducing overall costs and provide a single source of truth for all eligibility data throughout the Enterprise. In doing so, all existing eligibility systems would be consolidated, which would reduce the need for storing redundant and/or unstandardized data in multiple locations.

In planning for procurement of this Enterprise-wide eligibility solution, DHS developed a list of architectural principles and guidelines for the development of this system. These guidelines, taken from the ARIES RFP, are listed in Figure 7.

Architectural Imperatives, Principles and Guidelines
To build out a common Enterprise Platform that will support Integrated Eligibility and Benefit Management Services (ARIES) and further provide an enterprise technology foundation for all DHS business operations and programs, the following architectural imperatives have been developed by AR DHS leadership: • **Focus on Users' Needs:** Participants and program users need to be able to use the future system via multiple channels and task-appropriate devices aligned with the DHS' model of practice • **Meet Federal Requirements:** The Solution will address and meet all Federal requirements • **Enterprise Approach:** Integrate all systems support into a single integrated solution reflecting the user's experience in using the system to support their work efforts • **Integrated Access and Consistent Interface:** The system's user interface needs to provide users with an integrated access to all modules, data, and services relevant to the user group. Each user should be provided a consistent, customizable, and easy to use interface • **Ease of Use:** The system will provide user-defined criteria for ease of learning, use, and support for State staff and also to provide robust client self-service wherever possible and appropriate • **Decision-support:** Timely, accurate, and complete decision support information should be made available to authorized users, at all levels, through the application and standard tools • **Service-Oriented:** The target architecture should consist of a number of services that are compliant with industry standards for SOA to facilitate reuse, adaptability and interoperability supporting the larger DHS IT agenda for an integrated enterprise platform • **Agile:** The system should be able to readily adapt to changing business needs quickly and with minimal technical resources • **Scalable and Extensible:** The envisioned system needs to be scalable to accommodate additional users and extensible in expanding capabilities to meet future business needs and Federal and State mandates • **Secure and Manageable:** The target architecture for the next generation system needs to be protected against common Internet threats and will be manageable within the existing operational and financial constraints • **Location Independence:** System access should not be restricted based on the location of the user. Authorized users should have access based on their roles irrespective of their geographical location • **Data availability:** The most up-to-date version of data needs to be made available to system users at all times within the cost and performance constraints

Figure 7: Architectural Principles and Guidelines

This approach potentially addresses many of the MITA TMS components, such as leveraging SOA technology to allow cross-agency shared services, scalability, and extensibility to allow for potential future functionality and enhanced decision support services for improved business rules management.

To address these functional needs, DHS is adopting an Enterprise-wide approach to the underlying technology, which will set standards for the technology, interoperability, and data management. Figure 8 provides an estimated concept of the integrated platform:
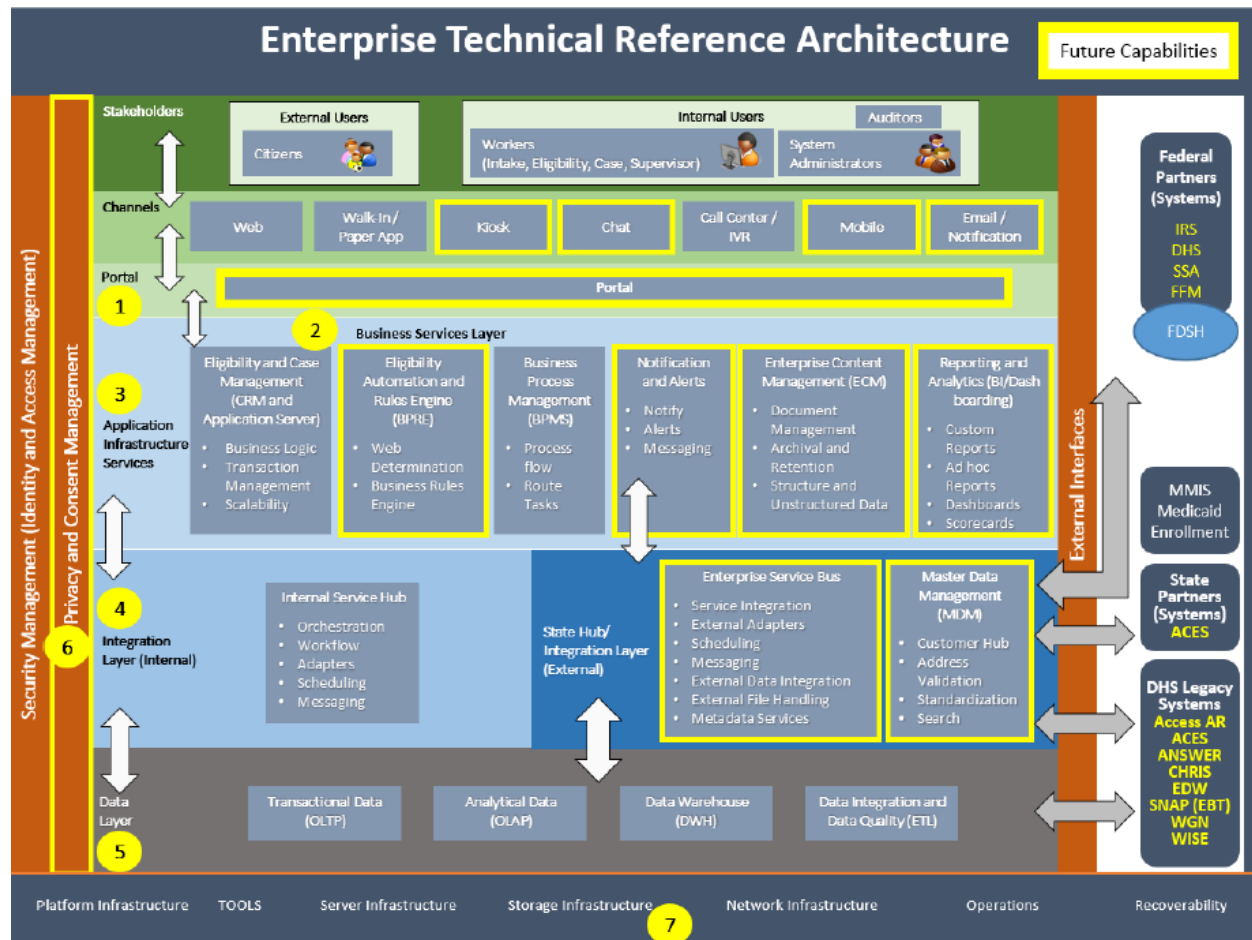

Figure 8: Enterprise Technical Reference Architecture

DHS will continue to develop its COO and future conceptual model. However, initial planning and key functional considerations for the Medicaid Enterprise will build on the foundation provided in the conceptual model, which includes SOA and implementation of modular functionality.

DHS requires the formalization of an Executive Governance Board, Information Technology Council, Data Council, Change Council, with peer review groups, an architecture review board, and registration of technical and application service solutions into an enterprise repository. All application and technical solutions should follow established enterprise naming standards and comply with security and disclosure.

These Councils and review boards will be responsible for establishing and maintaining technical and data governance across the Enterprise.

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6 TMS Summary

The TMS is used to gauge the level of technical strategy throughout the Medicaid and greater enterprise. Many key stakeholders throughout the enterprise provided valuable insight into how they believe the technical environment exists today and where it is heading.

The main theme from the TMS is the establishment of Enterprise-wide technical governance and enterprise architecture.

Organization is central to applying technical management strategies across multiple organizations in the Medicaid Enterprise. Leadership needs to leverage existing governance groups within the different agencies into a centralized planning group with a structured, actionable agenda to agree and adopt TMS and DMS policies that will be applied to all future IT Service Programs. This approach will allow business teams to deliver continual technical and data improvements to stakeholders while collaborating and leveraging technical and data solutions and services.

Currently, many systems store redundant data types, and confusion often arises as to which system is the true source of record. Systems pull data from the identified source of record, but then modify it or transform it to meet different business needs. This issue has ultimately led DHS to begin a strategy to consolidate eligibility data into a new, single source of record system that has the capability to expand its services across the Enterprise and act as an Enterprise-wide platform. Other agencies have an opportunity to leverage this new system and architectural structure to meet their current business needs and strategize on meeting future needs.

Overall, Technical Governance and Enterprise Architecture Adoption are the primary TMS component strategies that should be adopted based on the assessment information gathered. Technical governance exists at many levels throughout the different State agencies with a larger Executive Governance Board that is being formed to provide a larger-scope vision for the technical strategies.

The existing governance structures addresses many of the TMS components, especially regarding eligibility business programs and services. These TMS strategies have the potential to be leveraged across the Enterprise in other business areas to meet the needs of the State.

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Appendix A: Acronyms

This appendix will contain the acronyms used throughout the document and their corresponding definitions.

Acronym	Definition
ACES	Arkansas Client Eligibility System
ADH	Arkansas Department of Health
ADVA	Arkansas Department of Veterans Affairs
ANSWER	Arkansas Networked System for Welfare Eligibility and Reporting
APD	Advanced Planning Document
ARIES	Arkansas Integrated Eligibility System
AWS	Amazon Web Services
BA	Business Architecture
BCMS	Business Case Management System
CCO	Communications and Community Engagement
CCWIS	Comprehensive Child Welfare Information System
CDM	Conceptual Data Model
CFO	Office of Finance
CHRIS	Children's Reporting and Information System
CHRO	Office of Human Resources
CIO	Chief Information Officer
CLO	Office of Legislative and Intergovernmental Affairs
CMS	Centers for Medicare and Medicaid Services
COO	Concept of Operations
COTS	Commercial Off the Shelf
CRM	Customer Relationship Management
CTMS	Contact Tracking Management System
DAABHS	Division of Aging and Adult and Behavioral Health Services
DCCECE	Division of Child Care and Early Childhood Education
DCFS	Division of Children and Family Services
DCO	Division of County Operations
DDS	Division of Developmental Disabilities Services
DFA	Department of Finance and Administration
DHS	Department of Human Services
DIS	Department of Information Services
DMS	Data Management Strategy
DMS	Division of Medical Services
DSB	Division of Services for the Blind

Acronym	Definition
DWS	Department of Workforce Services
DYS	Division of Youth Services
EDI	Electronic Data Interchange
EEF	Eligibility and Enrollment Framework
EHR	Electronic Health Record
ESB	Enterprise Service Bus
HHS	Health and Human Services
HIE	Health Information Exchange
HIT	Health Information Technology
HITECH	Healthy Information Technology for Economic and Clinical Health Act
IA	Information Architecture
IBM	International Business Machines
ITSM	Integrated Vendor Ticketing System
LDM	Logical Data Model
MAR	Management and Administrative Reporting
MDM	Master Data Management
MECL	Medicaid Enterprise Certification Lifecycle
MECT	Medicaid Enterprise Certification Toolkit
MEELC	Medicaid Eligibility and Enrollment Life Cycle
MEET	Medicaid Eligibility and Enrollment Toolkit
MITA	Medicaid Information Technology Architecture
MMIS	Medicaid Management Information System
NTT Data	Nippon Telegraph and Telephone Data
OCC	Office of Chief Counsel
OCSE	Office of Child Support Enforcement
OP	Office of Procurement
RFP	Request for Proposal
SaaS	Software as a Service
SDLC	Systems Development Lifecycle
SOA	Service Oriented Architecture
SSO	Single Sign-On
TA	Technical Architecture
TANF	Temporary Assistance for Needy Families
TEA	Transitional Employment Assistance
TMS	Technical Management Strategy
T-MSIS	Transformed Medicaid Statistical Information System
WIC	Women, Infants, and Children

Acronym	Definition
WSDL	Web Service Definition Language
XML	Extensible Markup Language

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Approvals

We, the undersigned, have reviewed and approved this document as the official MITA SS-A deliverable, including all revisions as documented in the Revision History table, above.		
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