January 11, 2022

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

RE: In Response to Request for Information-Medicaid Enterprise System (MES)# CRFI 0511 BMS2200000001

Dear Ms. Crystal Hustead,

Deloitte is pleased to provide insights into our Medicaid Enterprise Systems (MES) solutions that have been or are being implemented across the country. We are the only Systems Integrator (SI) Vendor that has successfully implemented an SI solution in Production that aligns to CMS modularity guidelines. We are confident that our experience can benefit BMS in the planning and execution of your upcoming MES modernization efforts. To respond to your specific RFI questions, we focus on our experience and real-world insights implementing HealthInteractive™, Deloitte's MITA-aligned, pre-built, and cloud-hosted SI platform product. HealthInteractive is currently in Production in 4 states, hosted on secure cloud architectures, and is integrated with (or in the process of integrating with) MES modules from leading healthcare technology vendors. Additionally, as the largest government consulting firm dedicated to the modular MES market, we bring years of relevant experience integrating and operating Data Warehouse and Decision Support Systems (DW/DSS). The perspectives we share in response to your specific questions are based on our experience serving as a leading services integrator to help many public and private sector clients improve MES technology, business processes, and outcomes. This experience includes serving 47 of the 50 state departments of Health and Human Services (HHS), 41 of the 50 states in health-related services, nearly 85 percent of the top 25 U.S. health plans (as ranked by AIS' Directory of Health Plans), nearly 90 percent of the top 25 managed care organizations (as ranked by Health Leaders), and more than 90 percent of the Honor Roll Hospitals (as ranked by U.S. News & World Report). We welcome the opportunity to meet with BMS to expand upon our recommendations, demonstrate the production-proven capabilities of our solutions, share experiences of our delivery teams, provide input for your procurement efforts, and advance your vision as requested in the RFI. Please contact us with any questions.

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Corporate Overview

Deloitte is one of the largest professional services firms in the world, with expansive capabilities across consulting and advisory services. We bring the best of our global capabilities, industry expertise, relationships, and personnel to serve DHHR. Our Government & Public Services (GPS) practice is organized with formal capability offerings across Technology, Advisory Services / Cyber Security, Human Capital, and Strategy & Operations - but even more importantly, these are not independent silos within a large organization. Deloitte is one firm, with a cohesive culture, consistent methodologies and processes, and significant experience and talent across these capability offerings. Deloitte's capabilities align perfectly with the services required to maintain, operate, and elevate MES for BMS.

We organize our business by industry. Our Government & Public Services (GPS) practice is one of the largest we offer. Within GPS, we have built a practice dedicated to modular integration services by making investments in developing technical solutions, accelerators, methods, tools, and our team. What does this mean for BMS? It means you will reap the benefit from lessons learned and experience gained with other clients that are using our MES solution. It means we have the experience and relationships to make a multi-vendor environment succeed. It means we will guide you through this implementation with success.

Our Government & Public Services Practice

Deloitte's national Government & Public Services practice consists of more than 12,000 consulting and advisory professionals across the country serving federal government, state government, local government, and higher education clients. We are working with other clients on similar projects that use our proven solution, and you can have confidence that we will leverage your existing investments while gaining a solution that is proven and implemented in 4 other states – forging a path forward for Medicaid modularity. Our track record of success helps other module vendors by eliminating any need for them to price in additional risk or expect substantial effort for custom integration because they trust Deloitte will be successful in the integrator role and understand that HealthInteractive works.

Deloitte's team is the only team that has deep experience delivering Medicaid and health care-related system integration projects. In addition, we are the only team that has hands on full implementation experience on modern state enterprise architectures in Kentucky, Louisiana, Massachusetts, Montana, Ohio, Pennsylvania, Virginia, and Wyoming. Our dedicated Integration Services (IS) team incudes individuals from our state health, health, and human services (HHS) systems integration, cybersecurity, and technology specific product practices, complemented by advisors that are experienced leaders in the Medicaid market.

Along with comprehensive solutions and strong capabilities, we bring a collaborative culture that enables client service teams to draw across functions and industries to deliver solutions tailored to your needs. We know federal, state, and local government, and higher education; we speak the same language and bring a deep understanding of the complexities of what our clients do and how they do it. Our goal is to provide the knowledge, judgment, and experience to help you address the most complex challenges you are facing in serving your constituents, whether it is integrating new technologies, rethinking access to services, inventing ways to streamline processes, or finding ways to facilitate partnerships. Together, we help clients tap into their full potential and move forward with confidence and deliver the best service possible, providing innovative outcomes that make

positive impacts in healthcare, human and social services, jobs, security, infrastructure, education, and the lives of the citizens served. Our experience in creating and maintaining systems enables us to help you create a realistic and implementable overarching enterprise vision and plan.

Company Profile

Deloitte's Company Headquarters: 30 Rockefeller Plaza, New York, NY, 10112-0015
Deloitte was founded in 1845.
Ownership structure: Deloitte Consulting is a Limited Liability Partnership.
Locations: Deloitte has more than 100 locations in the U.S. and several other locations around the world.
Organization size and scope of operations: Our reach is global. As of 2020, our employee count is 334,800.

REQUEST FOR INFORMATION-MEDICAID ENTERPRISE SYSTEM (MES) Response

Question#4.2.1

Please describe any elements BMS should consider incorporating into its vision, planning, and implementation for a modernized, modular MES.

Implementation of a modular, interoperable MES is typically structured in a phased approach. The deployment strategy should be conducted while running the legacy system in parallel as well as providing necessary support for legacy 3rd party systems, as a business continuity fallback for a time, to confirm the new system is performing as required. Over the past years, Deloitte has shared its viewpoints regarding implementation approaches with many states. Based on our experience with similar projects, we have included the following considerations for BMS:

- BMS should address key opportunities for data cleansing by implementing Provider, Member, and Reference Data modules. This helps establish clean systems of record, specifically starting with publishers, across modules.
- BMS should then consider implementing modules that reduce burden/address current "pain points" and can be carved off the legacy system.
- Onboarding multiple modules at the same time introduces cross dependency between modules which has resulted in unanticipated delays. Onboarding one module at a time has been seen beneficial from a schedule perspective.
- BMS should also consider creating a robust data management strategy involving SI and DW vendor for managing data governance framework to standardize data standards across MES and implement a data quality hub within DW/DSS.

A phased strategy should include coordination and comparison of legacy and new MES solution testing and process coordination between the legacy and the new MES solution. Points for BMS to consider in its vision, planning, and implementation for a modernized, modular MES include the following:

- **Critical path first steps**. Module procurements and/or a detailed analysis are requested and conducted on the phased approach. Once modules are procured for the initial phase, modules collectively finalize high-level designs and identify any gaps in the approach. If not already in place, MES program PMO and governance are established. Tentative MES Master Project Schedules are created and confirmed with all stakeholders. High-level design and planning for data conversion and migration are also completed at this time as well as high-level design and planning for temporary processing to keep the legacy system in sync with the new MES platform.

- **Staffing**. Staffing needs and experience can be modeled based on the legacy platform, but should factor experience with new processing, tools and technologies, employee flexibility, permanent vs. temporary staff, and the additional costs of acquiring new staff and overhead until the legacy system is no longer in use.
- **Training**. System and business process workflow training is planned or considered early on in terms of project schedule, resources, logistics, and training environments. Training considers temporary legacy processing as well as MES program help desk training depending on the scope of vendor procurements.
- **Data quality.** The agency should consider building data quality hub as part of its DW/DSS's vision. The solution should be a central point to monitor incoming data quality from different modules and publish data maturity or quality reports. The solution should include a configurable data quality framework which brings robust error handling and reconciliation functionality to handle data anomalies and provide enhanced logging that is easy to configure and use. Below are the suggested steps to quickly address error warnings that are raised during data load:
    - Identify the source system/file from where the data has originated
    - Analyze the data and look for patterns and avenues for improvement of data quality and clerical review
    - Act on the appropriate solution based on the findings
- **Data conversion and migration**. Modules identified for the phased approach need to convert and migrate data to the new platform. When implementing in a phased approach, data values can be different between the old and new platforms and require crosswalk lookups or translations as well as updates in both systems. Careful planning and coordination with related modules also must be factored into data conversion processing. From DW/DSS perspective, BMS should consider the solutions where data model is flexible enough to store all relevant data related to MES modules and scalable to meet the State specific requirements. Based upon our experience in implementing MES DW solutions (after initial conversion), the cleansed and standardized data that serves as the foundation for the new warehouse can also be used as the source of data for future module Data Conversion E.g., in WY, the initial conversion from Conduent system was done into the MES Data Warehouse and subsequently the cleansed provider data in DW was leveraged to initialize the new Provider Enrollment module.
- **Process analysis and design.** In a phased approach, it may not be possible to completely have all business process functionality in the new system, bringing in partial functionality in various phases. High-level analyses and designs are completed collaboratively with all stakeholders to identify gaps, to plan for staffing, interim process needs, and training; and determine any potential impacts to data conversion and migration.
- **Testing and release management strategy**. In some respects, a phased approach allows for a more focused approach across all testing phases due to the more targeted deployment functionality. That said, additional complexities arise when factoring in the increased testing required due to the overlap in processing and coordination of business processes and data between the old and new platforms.

Question#4.2.2

In the projects you have been on, what was the optimal configuration of MES modules specific to functionality, integration of other solutions, and management of data?

Typically, we have seen the following modules in every MES procurement across the country:

- Systems Integration (SI) Services
- Member & Claims Management
- Provider Management
- Financial Management

- Enterprise Data Warehouse (EDW) or Data Warehouse & Decision Support System (DW/DSS)
- Encounter Processing System
- Care Management System
- Appeals & Grievances
- Pharmacy Benefits Management, etc.

We believe SI should be the first module to onboard and states should plan the MES implementation. Deloitte's SI platform is equipped with APIs and interfaces that provide out-of-the-box capabilities to exchange business critical data between all these modules, in addition to capability to configure based on the Department's specific requirements.

From our experience, Medicaid Enterprise System (MES) solutions go most smoothly when we address data challenges and complex data management relationships – starting with data governance and data quality – early on. This helps agencies avoid challenges and barriers down the road. We suggest the following areas to be considered for data management.

- **Data governance**: This area focuses on the organizational structure, processes, and tools used to establish and enforce controls around how data is accessed, handled, updated, and retained within the enterprise. This avoids the risk of mismanagement of sensitive data.
- **Data security & privacy**: This area focuses on the specific technologies and protocols to enforce policies and regulatory compliance. This framework allows compliance with HIPAA needs of data security.
- **Data quality**: This area focuses on the establishment of processes that identify, monitor, and continuously improve the quality of data within the Medicaid Enterprise.
  Master data management: This area focuses on the technologies and methods used to master common categories of information (e.g., Members, providers, reference data) across the range of data sources in the enterprise.

Question#4.2.3

Describe Medicaid Enterprise solutions your organization provides or is developing that BMS should consider during its roadmap planning. BMS is interested in learning about the following:

- The Medicaid Enterprise business processes or discrete functionalities targeted by the Medicaid Enterprise solution.
- How the Medicaid Enterprise solution is packaged (i.e., commercial-off-the-shelf (COTS) or proprietary; modular or tightly integrated; cloud or local).
- How the Medicaid Enterprise solution is priced (please include methodology only, e.g., Per Member per Month, fixed price per year, data usage—please do not provide actual purchase prices).
- In how many states is your Medicaid Enterprise solution currently deployed, or expected to be deployed, and how long has it been in use.
- Configurations and customizations typically requested to adapt the product for use in a State Medicaid Program.
- Technical architecture and processing capacity/scalability.
- User-facing and self-service capabilities.
- Interface support, flexibility, and extensibility to other stakeholders and State agencies.

Deloitte is a leader in Medicaid Enterprise System (MES) System Integration (SI) and Enterprise Data Warehouse (EDW) / Analytics markets, bringing pre-built solutions with MITA-aligned out-of-the-box features and functionality, as well as components that facilitate and accelerate data sharing and integration between source systems and consumers. Listed below are the points for BMS to consider during its roadmap planning:

- **Medicaid Enterprise Solution Overview:** The two key components of our Medicaid Enterprise solution include HealthInteractive™ and HealthMAP products. HealthInteractive™ is Deloitte's market-

leading System Integration platform, built with a service-oriented architecture (SOA) as a cloud-enabled, software-as-a-service (SaaS) solution aligned with MITA's Seven Conditions and Standards. HealthMap is a modular and scalable Software as a Service (SaaS) Analytics solution which is purposely built to meet the end-to-end enterprise data needs of Medicaid Enterprise Systems (MES). HealthMAP is built on cutting edge tools and cloud technologies designed to meet the ever-growing needs of the various of the enterprise and Medicaid business functions. The solution aligns with the MITA framework and subject areas are organized to meet the CMS compliance for reporting.

- The HealthInteractive™ SI platform is pre-built with 80+ custom-built APIs that support MITA-aligned business processes across the enterprise. HealthInteractive™ is designed to support modularity and interoperability, allowing states to confidently navigate Medicaid modernization and the transition from or evolution of their legacy MMIS. Additional MES enterprise components, including EDI, Managed File Transfer (MFT), Business Rules Engine (BRE), Workflow Engine, and Enterprise Content Management (ECM), provide centralized MES services that are accessible by other module solutions and trading partners. HealthInteractive™ is equally flexible to integrate with enterprise technology assets, emphasizing reuse, governance, and standards-based data exchange. HealthInteractive™ provides an on-demand scalable architecture and environment. HealthInteractive™ is designed to be flexible and scalable to accommodate future changes such as upgrades or replacement of components per the State's needs.
- HealthMAP Data analytics solution is built on innovative tools and cloud technologies designed to meet the ever-growing needs of the enterprise and Medicaid business function with data models that fit standard reporting needs for TMSIS, MARS, SURS, CMS64 and HEDIS measures. This advanced data analytic solution offers out-of-the-box reporting and analytic capabilities ranging from traditional reporting and ad hoc to interactive dashboards, GIS, and predictive analytics. The HealthMap solution has pre-built connectors to HealthInteractive™ which helps in the integration with other Medicaid Enterprise modules for near real time to real time data exchanges.

- **Packaging:** Our Medicaid Enterprise solutions -HealthInteractive™ and HealthMap are licensed for configuration and use in a SaaS (Software as a Service) model. The solutions are scalable to meet each customer's needs by leveraging cloud technologies for rapid deployment. The pre-built tools and features of the Medicaid Enterprise Solutions allow states to bypass a "build" phase for their integration architecture and instead of focus on configuration, data governance, and fit gap analyses while onboarding other MES modules and business solutions. The out of the box features will help rapid deployment and cut down implementation timelines.
- **Pricing:** The Medicaid Enterprise solutions -HealthInteractive™ and HealthMAP are usually made available to the states at a fixed price per year, and the deliverable cost and milestones are a component of the fixed price.
- **The U.S. States leveraging our solution:** HealthInteractive™ and HealthMAP have been in the market since 2016 and successfully serves as the MES SI solution in four states. It is a proven solution and is already up and running and delivering value in the State of Wyoming, the Commonwealth of Virginia, the State of Ohio, and the State of Montana. We expanded our capabilities based on our ongoing product investments and worked through module integrations in other states. Deloitte is the only vendor with four successful Production launches of an MES SI solution in a modular environment.
- **Configurations and customizations:** We submit separate and individually priced information for each of the capabilities selected by the state.
- **Technical architecture and processing capacity/scalability:** HealthInteractive™ is a turn-key solution, which is entirely operated and managed by Deloitte with key components for Application Programming Interface (API) Management, Certificate and Key Management, Enterprise Service Bus (ESB), Managed File Transfer (MFT), Queue-based, and Publish/Subscribe Messaging, Electronic

Data Interchange (EDI), Batch and Real-time submissions, and Performance Monitoring and Operational data Reporting and Master data management. HealthMAP is a production proven advanced analytics and Datawarehouse solution that offers a flexible Data model supporting the core Medicaid business functions (Member, Provider, Third Party Liability, Encounters/Claims, Reference data, Financial, Fraud Waste and Abuse, Program integrity, Electronic visit verifications, Vital statistics), Customizable Federal reporting features(TMSIS, MARS, SURS, HEDIS measures), Business friendly Adhoc reporting package, pre-built dashboards and reconciliation framework. Both HealthInteractive™ and HealthMap are built on a scalable architecture, configurable to meet system availability and performance requirements warranted by the States.

- **User-facing and self-service capabilities:** HealthInteractive™ provides an interactive portal that integrates with HealthInteractive™ applications, State's applications, and module vendor applications using Single Sign-On (SSO) with role-based access to authorized users. Users can be maintained, managed, and authenticated against IBM Security Directory Server (ISDS) and/or NCID as a pass-through authentication. This portal also provides self-service options for users to manage user accounts, upload files, raise support requests, view notifications, etc. The HealthMap solution offers a centralized Unified portal that offers integration with BI (Business Intelligence) tools and applications leveraged as part of the solution. The unified portal creates a seamless experience for the business users as they go from one tool to another based upon the specific use cases.
- **Interface support, flexibility, and extensibility to other stakeholders and State agencies:** HealthInteractive™ supports the integrations and interactions required to tie the various modules and business partners together into a cohesive environment to facilitate the sharing of data and completion of end-to-end business processes. The foundation for this layer is the IBM Integration Bus (IIB) as our ESB. Other supporting components include Interfaces/Batch, Security, and our pre-defined HealthInteractive™ 80+ APIs to support the business functions outlined within the MITA 3.0 framework.

Question#4.2.4

What do you see as the benefits and risks of including business process outsourcing (BPO) services together with technical services?

We believe in the importance of having an enterprise help desk that allows members to seek help or assistance from a single place and aligns to a 'no wrong door' policy. As MMIS processes are transitioned from a monolithic model and separated into an integrated modular model, it is beneficial when Business Process Operations (BPO) services remain centralized rather than separated out into multiple help desks across module vendors.

An enterprise help desk should provide operational analytics with a consolidated view of issues, trends, volume, and response times across disparate module vendors. This creates a one-stop-shop for the Department and module vendors to access and triage incidents leading to an increase in operational efficiencies. A common repository should be used to track all help desk incidents from identification through closure. The help desk should also include life cycle management and reporting capabilities to properly track incidents and communicate resolutions accordingly.

Deloitte recommends offering stakeholders multiple modes of communication to connect with help desk staff including call center, e-mail, online chat, and online submission of issue tickets. It is beneficial if the Department specifies the help desk hours of operation (M-F 8:00AM – 5:00PM ET, 24x7, etc.) so vendors can determine resource requirements.

The enterprise help desk should include robust operational processes and procedures. It is important that the SI Vendor provide Tier 1 support to act as a first point of contact when an incident occurs. The SI Vendor should

triage the incident, appropriately route tickets to the relevant module vendors for further support and help coordinate in resolving the issue.

Question#4.2.5

Describe your experience, if any, with CMS Outcomes-Based Certification or Streamlined Modular Certification.

Over the past three years, many of our team members have participated in or facilitated CMS certification reviews for one or more of the connected modules across the MES environments where we serve as Systems Integrator (SI). While the SI is not required to be certified, we have provided input and/or facilitation for various modules in Wyoming, Montana, and Nebraska.

Listed below are the key lessons learned from our experience with other MES module vendors:

- Planning for CMS Outcomes-Based Certification Requirements from the beginning of the project and then aligning them with the integration service activities greatly helped us.
- Documentation throughout various phases of the project also plays a major role in the CMS certification process.

Deloitte is seasoned in supporting as well as managing the entire CMS certification process. Our highly experienced staff and proven certification processes support timely completion of each certification. We have experience assisting 24 states to receive maximum Federal Financial Participation (FFP) for design, development, and implementation of integrated eligibility systems and seven states with successful MMIS certification reviews. Recently in 2021, Deloitte played a key role in the certification of State of Wyoming's Data Warehouse by CMS. Additionally, in the State of Nebraska our Deloitte team has completed their outcomes-based certification review with CMS.

We understand that certification is an ongoing collaborative process with the Agency, the Independent Verification and Validation (IV&V) vendor, and CMS. To complete Certification efficiently, we understand that efforts can be conducted concurrently with the project routine rather than as a task post-implementation.

Question#4.2.6

What approaches to supporting consistency in business process functions and data architecture across multiple systems and vendors have you encountered?

Deloitte facilitates implementation of business process functions without implementing them directly. Our solution is equally flexible to integrate with enterprise technology assets, emphasizing reuse, governance, and standards-based data exchange.

Deloitte recommends choosing a SI Vendor that has a proven integration platform, a DW vendor which has a matured Medicaid specific configurable data model and supporting services that drive consistency by managing, coordinating, and supporting the work of multiple MES vendors, in alignment with the goals of the Department. The chosen vendor should have proven ability to develop strategic guidance and governance by utilizing the integration architecture to connect the entities and the data services within all health IT initiatives Through our current implementations, we have seen several items that, if planned for by the Department, can help in maintaining consistency, reducing potential roadblocks, and even unexpected costs.

- Agree upon data standards & formats of exchange prior to integration of modules through the SI platform and stay consistent with application of these standards as additional modules are onboarded.
- Incorporate tools to persist operational data and integrated data views across multiple sources.
- Provide module vendors a single, centralized repository of data for each module's operational needs and support integrated data views across multiple sources. Implement detailed auditing functionality, which tracks every transaction from the time it is created to its recent value.
- Create reports on shared transactional data from one lone source as opposed to getting those reports from multiple vendor systems.
- Implement Reference Data Management (RDM) component to facilitate the usage of enterprise processes for recognizing, harmonizing, and sharing coded value sets that are relevant to one or more

source systems via complex mappings addressing functional domains such as Provider Enrollment or Claims Processing.

- Implement various standards and protocol for integration and data exchange among modules securely in real-time, near-real time or in batch.
- Adopt an Enterprise Release Management schedule/calendar to coordinate the releases across all modules and help managing the associated risk & putting needed controls in place.

Question#4.2.7

Please provide your recommended strategy for ongoing compliance with the CMS Interoperability and Patient Access final rule (CMS-9115-F). The rule can be found at the following location: https://www.cms.gov/files/document/cms-9115-f.pdf.

With the ever-growing need for sharing health information and access to the patient care data from the Medicaid system, it is essential for the Modern Medicaid Enterprise systems to be pre-built with the Application Programming Interfaces (APIs) to support interoperability and data exchange out of the box.
Our recommended strategy to achieve compliance with the CMS Interoperability and Patient Access final rule (CMS-9115-F) is to design the solution components (Systems Integrator, Service integration and Data integration layers) to process Health Level 7 (HL7) data as well as create HL7 data extracts and support API-based exchanges using HL7 format.
The Interoperability solution should be built on an open architecture foundation that is innovative, scalable, and flexible. The solution should assist BMS to comply with the Interoperability and Patient Access Final Rule and position the Department to expand and adapt quickly with future rulemaking as CMS continues to build on its roadmap to improve interoperability and health information access for patients, providers, and payers. The Interoperability solution should anticipate future use cases introduced as CMS continues to learn and expand interoperability. The answer should provide the right platform and put BMS in the position to address upcoming CMS mandates such as payer-to-payer data exchanges. The solution should be FHIR compliant, support industry data standards such as X12, and provide APIs compliant with CMS requirements. In addition, the solution should harness insights through data views of API usage and security monitoring data.

Question#4.2.8

Provide your strategy for compliance with the Health Insurance Portability and Accountability Act (HIPAA) and Federal Risk and Authorization Management Program (FedRAMP) Requirements.
Information about HIPAA compliance can be found at the following location: https://www.hhs.gov/hipaa/for-professionals/privacy/index.html. Information about FedRAMP can be found on www.fedramp.gov.

Our recommended strategy to achieve compliance with the Health Insurance Portability and Accountability Act (HIPAA) is to design the solution components and transmit data using HIPAA-compliant transmission methods. When the Medicaid data hub and Data integration layer are designed, we recommend that the ETL tools, API gateways and ESB tools support HL7 based data exchanges and are set up in accordance with HIPAA Privacy and security rules to safeguard the PHI data both at rest and in- transit.
We recommend the Department include support for Data Management and Governance activities while planning for Medicaid Data Hub and Data Integration Layer procurement. The following areas to be supported by the data management policy framework to manage the risk of PHI breaches and avoid data leaks:

- **Data Security** is an essential part of the Medicaid Enterprise System for protecting sensitive information and complying with regulations and practices mandated by HIPAA. The processes put in place should validate that data is appropriately protected, accessed, and shared according to policy guidelines. We recommend developing security, encryption, and retention policies to secure enterprise

data assets from unauthorized access and deploy procedures to monitor data access and security policies, and compliance of these practices.

- **Data security & privacy management**: This area focuses on the specific technologies and protocols to enforce policies and regulatory compliance. This framework allows compliance with HIPAA needs of data security.

Host MES applications on FedRAMP Moderate certified data centers and implement the NIST 800-53 technical, managerial, and operational security and privacy controls to securely manage Protected Health Information (PHI), Personally Identifiable Information (PII), and other confidential data in a tiered/layered manner using a holistic, defense-in-depth security approach. Additionally, ensure that the Data Centers are built to meet the applicable privacy and security controls to protect all Health Insurance Portability and Accountability Act (HIPAA)-related and other sensitive data of the State and Department.

We have hosted our applications on AWS FedRAMP Moderate certified data centers successfully and implemented the NIST 800-53 technical, managerial, and operational security and privacy controls to securely manage Protected Health Information (PHI), Personally Identifiable Information (PII), and other confidential data in a tiered/layered manner using a holistic, defense-in-depth security approach.

Question#4.2.9

Provide your strategy for assisting states in achieving compliance with CMS, and federal rules, regulations, and guidance related to modularity, leverage, reuse, and outcomes achievement.

Our recommended strategy to achieve compliance with the **CMS** and **federal rules** is as follows:

- Deloitte uses a Phased approach for delivering the MES solution. In Phase-1, our efforts focus on completing Enterprise Strategic Planning, Solution Design, and Project and Program Management to lay the groundwork for Phases 2 and 3 and move our Projects towards successful CMS certification.
- Deloitte works with an independent, third-party contractor to conduct an independent vulnerability testing and network penetration testing of our solution per state and federal requirements. These reviews are carried out on an annual basis, or sooner as required by state or federal agencies.
- The critical CMS documentation originating from Phase 1 will be the CMS Certification Management Plan, which will align our integration service activities and MES module certification activities with the latest CMS Outcomes-Based Certification Requirements. During this phase, it is essential to understand that CMS requires documents such as the Advance Planning Documents (APDs), Project Management, Governance, Testing, and other planning documents as certification evidence.
- Our deep expertise, along with strong industry and vendor connections, enables us to provide you with a robust auditing framework and help comply with Federal and State regulations. Security is built into every phase of our secure software development life cycle to build a solution that seamlessly incorporates the Commonwealth's and federal security requirements.

Listed below are the guidelines for achieving modularity, leverage, reuse, and outcomes:

- In the multiple states where we are currently working, we have found one to two concurrent module integrations, depending on complexity, to be the ideal balance for moving forward with **modularity** while maintaining balance across the program. Prioritization of integration task orders can significantly help the Department have a smooth ride during module integration schedules and avoid unnecessary carrying costs for technical (e.g., configuration or test) resources in periods where integration needs may not be.
- The SI vendor selected by BMS should have experience in hosting the SI solution appropriately to help the Department satisfy the CMS MITA **Leverage** Condition that state solutions should promote the **reuse** of Medicaid technologies and systems within and among states.

- In our experience, well-structured Certification Workgroup meetings proved many benefits in keeping the enterprise certification stakeholders informed and meeting the project work plan timelines. This workgroup with participants from all enterprise stakeholders defined the **outcomes**-based metrics and KPIs that support the metrics, promoting a shared understanding of what is expected from each stakeholder group and when needed. Select a SI vendor who has experience completing the **Outcomes-Based Certification** (OBC) process to achieve the outcomes.
- As part of the CMS activities, the State should consider coordinating with SI to gain access to the repository and leverage Enterprise DW to store and share reusable artifacts for Medicaid programs.
- The State should consider a DW/DSS vendor which has an inbuilt solution/component for T-MSIS reporting. The solution should have a quality component which provides State visibility into the quality of T-MSIS extracts and TPI's (Top Priority Items) even before CMS submission. T-MSIS is a critical data and system component of the CMS Medicaid and CHIP collects utilization and claims data. T-MSIS monthly data files submitted to CMS.

Question#4.2.10

What approaches do you suggest for Disaster Recovery processes in a modular MES that accounts for integration and communication across multiple partners?

In our current Medicaid data solutions and data warehouse implementations, all the data resides on enterprise platforms in the public cloud. The complete Production system is fully managed on the enterprise platform and the disaster recovery (DR) databases are hosted in a DR site, which is in a different availability zone on the same cloud platform.
The Systems Integrator component of our Medicaid Enterprise System architecture includes an Operational Data Store (ODS), which includes a set of attributes to meet common operational needs of the enterprise. While the Operational Data Store (ODS) enables quick and easy access for operational reporting, the data warehouse is used for Business intelligence, canned or standard reporting, and dashboards. This distributed data approach across the ODS, and data warehouse eliminates latency and the need for another data replication process.
If the State intends to perform operational reporting from the Medicaid data hub, we recommend setting a data replication strategy for real time replication of the Module data into a segregated database on the same platform (i.e., Replica database), which is decoupled from the Medicaid data hub layer and applications. For near-real time operational reporting, we suggest a data exchange and interaction strategy using web services or batch-based data exchange through file extracts.

From DW/DSS perspective, the State should consider a solution that allows auto failover to eliminate the need for duplicative, unused licenses. This can be achieved through active data storage and code version backups. In addition, the solution provides the option of load balancers to provide high availability, handle failures and enhance solution performance. Another way to improve availability is to treat infrastructure like code. For example, a ready to deploy solution component provides an option of delivering infrastructure with short turnaround time in case of issues with your system environments.

Question#4.2.11

What organizational change and communications management processes have you seen employed for a modernized, multi-vendor MES implementation? How would you help support the evolution of the Medicaid Enterprise as a whole?

Organizational Change Management (OCM)

- Our SI and DW experience show that planning and organizational change management activities should begin early in the project lifecycle as a part of module integration activities.

- Including OCM in module integration activities enables the Department to leverage the synergies of ongoing module integration activities and recognize the importance of business re-organization to a successful implementation. Beginning OCM activities as part of module integration eliminates the need for integrating a new thread late in the process, gaining efficiencies and minimizing duplication of effort. It avoids the need for module vendors to attend new OCM meetings late in the project lifecycle when they are focused on development and testing efforts.

Communications Management

- We recommend your SI vendor create an integration communication management plan that documents objectives, channels/methods, cadence, and nature of communications between all stakeholder parties.
- This should include providing timely updates on project progress and implementation, discussing concerns, highlighting opportunities for improvement, and mitigating risks.
- The vendors should follow set guidelines to determine which types of communications need to be escalated for review or approval by Department leadership. These efforts enable the Department to better address their stakeholders' needs and improve stakeholder understanding of, confidence in, and adoption of new modules.

Deloitte's Support for the Evolution of the Medicaid Enterprise

- Deloitte has a dedicated product team continuously working on solution and process improvements, with 1-2 releases/upgrades planned every year. Our current SI/DW projects use tools we configured specifically for our MES projects that have been tested and refined as our projects matured.
- We continue to invest in our MES practice building and modernizing our technical solutions, methods, tools and growing our team of industry consultants, health policy specialists and former Medicaid Directors, State Health Commissioners and State Chief Information Officers.

Question#4.2.12

How does a multi-vendor environment change how you manage your own Design, Development, and Implementation (DDI) work? How should dependencies be identified, negotiated, and implemented in a multi-vendor environment?

Our response to this question is tailored to being both a SI and DW/DSS module vendor. In our experience, implementation of a modular, interoperable MES is typically structured in a way where the SI platform is implemented first to establish integration standards, to baseline technical foundation and services frameworks, then the DW/DSS module followed by a 'phased' roll out of functional modules such as Provider, Member and Claims (FI), Pharmacy, and others. We have also been part of MES projects where the State chose to adopt a 'big-bang' approach and implement all functional modules at the same time. We recommend the Department consider the module procurement schedule when developing the module integration strategy so that each module is sequenced correctly and is only integrated once. During the initial DDI of the baseline SI platform, we can support the Department to develop the strategy for onboarding subsequent functional modules in a 'phased' or 'big-bang' roll out. After the baseline MES SI platform has been established, Deloitte provides ongoing M&O support to the MES SI platform, while also leading new module integrations. To track the dependencies of a modular implementation in a multi modular scenario, individual project plans serve as an input for a Master Integration Schedule (MIS). The MIS incorporates regular planned updates from each module vendor for both in-flight activities and planned future tasks. The MIS helps provide an understanding of the plan/process across the program which enables predictable outcomes across multiple stakeholders, dimensions, and sessions. Consistent review of the MIS allows each module team to understand expectations before, during, and after integration sprints which may involve their module. With many stakeholders moving at the same time, understanding the implications of each task and the potential impact across the enterprise is of paramount importance for operational effectiveness.

Driving a single project plan across all vendors is required for tight collaboration and coordination for successful and timely implementation of a multiple-vendor project. It is extremely important to monitor dependencies across multiple vendors/modules. This is successfully enabled by assigning a project plan oversight team the oversight responsibility for this activity. It is also critical to define key contact points across all the modules and vendors to assess progress against the plan and to implement mitigation strategies for any gaps in support of overall project success.

Question#4.2.13

Describe your experience, if any, with collaboration tool(s) such as or equal to Jira®, Confluence, and IBM® Rational Team Concert (RTC) or other tools to track items, which include, but are not limited to, project milestones, deliverables, and/or implementation testing. Do you recommend any specific approaches or tool(s) for collaboration in a multi-vendor environment? Does your company prefer using its own collaboration tool(s) to support an implementation, or do you prefer using collaboration tool(s) provided by a state and/or a systems integrator (SI)?

From our experience working on MES modular implementations, we find that enterprise-wide use of program management tools actively facilitates enterprise communication and management.

Project management toolset strategy: Deloitte recommends bringing a tested project management toolset (Jira) to capture, manage, and monitor Risks, Action items, Issues, Decisions, and Changes (RAID-C). Jira is web-based project management software, developed by Atlassian, that maintains a sole source of truth for documenting and managing RAID-C items, test defects, incidents, releases, and lessons learned. Jira allows for easy access and collaboration with the MES module vendors and the Department for each integration engagement. On our MES projects, Deloitte has configured workflows in Jira to facilitate RAID-C processes and maintain control over approval or closure of RAID-C items.

In addition to Jira, Deloitte recommends JAMA for requirements traceability and test management, and a reporting tool (Deloitte's Test Workbench) to facilitate test monitoring and reporting.

We also recommend using tools, including Confluence, Jira, and SharePoint, to support the documentation deliverable life cycle through the creation and approval process. These tools were used extensively in our MES implementations, and we saw remarkable success using them as described in this response.

Listed below are additional strategies for the department to enhance collaboration in a multi-vendor environment.

- **Enterprise project milestones and deliverables strategy**: Based on our experience with the MES implementations across multiple states, we saw vendors' and subcontractors' Project or Portfolio Management Offices (PMOs) manage their individual project milestones, work plans, and deliverables as per contract requirements, whereas an Enterprise PMO (ePMO) is responsible for tracking work and milestones at the State's MES Enterprise level by coordinating with modules and tracking their milestones and progress.
- **Implementation testing and Release management strategy**. In some respects, a phased approach allows for more focus across all testing phases due to the more targeted deployment functionality. That said, additional complexities arise when factoring in the increased testing required due to the overlap in processing and coordination of business processes and data between the old and new platforms.

Enterprise Collaboration tools play a critical role in the successful implementation of the MES program. Implementing and using these collaboration tools effectively across all modules helps manage associated risk and puts needed controls in place.

As Systems Integrator (SI) acts as an interface between all modules, allowing the SI vendor to manage these collaboration tools would be a natural progression and we recommend an experienced SI vendor to be responsible for managing the collaboration.

Question#4.2.14

What roles and responsibilities have you seen for a system integrator (SI) in a modular systems environment? Was this role fulfilled by a separate vendor, incorporated with other services, or performed by the state Medicaid agency itself?

What are the key success factors and risks to success related to using a SI?

The table below details the roles and responsibilities that Deloitte believes should be provided by the Systems Integrator (SI) vendor. We have demonstrated these responsibilities by qualifications substantiating multiple successful on-time and on-budget MES SI projects of a similar magnitude and scope.

Systems Integrator (SI) Role	How Deloitte Qualifies
Provide a proven MES integration solution with configuration, development, testing and implementation support	• Demonstrated capability to provide the requisite integration technology [e.g., Enterprise Service Bus (ESB)] through multiple, similarly sized projects. • Demonstrated ability to integrate a diverse set of solutions and components including commercial-off-the-shelf (COTS) products, legacy applications, cloud-based Software-as-a-Service (SaaS) solutions, and service-based integration products.
Facilitate business transformation that accompanies a modular approach	• Demonstrated experience and success in enterprise-wide business transformation including transition of roles and responsibilities across organizational boundaries, the definition of new process handoffs and workflows, and policy/procedure changes that accompany new system capabilities. • Understanding and delivery of organizational change management responsibilities including communications, stakeholder involvement, identification and mitigation of risks associated with resistance to change, definition of revised performance evaluation and management, and design of enterprise education programs.
Create and manage the integration strategy, standards, and schedule	• Demonstrated experience in multiple states successfully creating and managing the SI strategy, standards, and schedule across two or more state HHS programs. • Led the integration via interfaces and Application Programing Interfaces (APIs) across state HHS internal and external business partners, including the coordination of technical and functional communications.
Establish and maintain an operational data store (ODS) that is supported by governance of data and stewardship of master data	• Demonstrated experience establishing and managing a state based ODS that handles the exchange of data across multiple HHS systems internal and external to the Department. • Experience working with state HHS organizations to establish standard data models, metadata, and processes for data management, data stewardship, and data quality maintenance.
Create and manage the MES integration testing platform to handle end-to-end testing as modules are introduced, replaced, or modified over time	• Experience with the methods, tools, and staff necessary to deliver a managed testing services which includes establishing and operating testing environments; organizing testing efforts; and preparing test scenarios, data, tools, and procedures for managing test data. • Program and project management skills needed to organize testing efforts such as User Acceptance Testing (UAT) that draw on numerous people from across internal, and possibly external, organizations.

Systems Integrator (SI) Role	How Deloitte Qualifies
Help State's ePMO to develop and manage Integrated Master Plan for the overall MES Program Management	• System Integrator can provide support to State's enterprise PMO in developing and managing integrated master plan (IMS) for the program. SI can help managing IMS while states ePMO can assign project managers to manage individual vendor projects.
Offer a portfolio of additional MES products that enhance the vendors ability to provide a holistic SI solution	• Experience delivering a suite of additional HealthInteractive™ products like: Master Data Management (MDM), Reference Data Management (RDM), Electronic Data Interchange (EDI) Gateway and Portal and Enterprise Content Management (ECM). • Out-of-box integration with Deloitte's base SI platform allows the Department to minimize setup and configuration time for these products.

Question#4.2.15

Describe your depth, breadth, and frequency recommendations for performing periodic vulnerability scans of production and development environments?

We recommend the environments for production and development are continuously vulnerability tested and code scanned to proactively identify and mitigate security issues and risks. We suggest using industry standard tools for vulnerability and application code scanning such as Tenable Nessus, IBM AppScan, HP Fortify, as well as vetted open-source tools.

It is important to define vulnerability assessment methodology and integrate into development and implementation framework. The methodology should identify code leaks, evaluate the likelihood of those vulnerabilities being exploited, and determine the impact they may have if the vulnerability is exploited.

We suggest network and database vulnerability scans are conducted every thirty (30) days on the solution environments and that static/dynamic analyses, leverage network scanning tools, and perform manual assimilation activities are performed routinely After scans are conducted, the report generated from the industry standard tools can be assessed and then open vulnerabilities can be documented in a POA&M (Plan of Action & Milestones) along with other key details such as severity, affected IP's, remediation next steps, owners, current status, etc.

As an additional check to the routine thirty (30) day scan, we recommend that the Go-live checklist for every module integration should include the vulnerability assessment signoff so that your highly sensitive data remains protected.

Summary of Recommendations:

- We recommend a vulnerability and security assessment methodology to be incorporated into the Integration life cycle to identify code leaks and potential vulnerability assessments.
- We suggest performing periodic vulnerability scans of production and development environments every 30 days (about 4 and a half weeks) and with every interim release of the Production code.

Question#4.2.16

What processes, techniques, and solutions does your organization consider critical for delivering optimal data sharing throughout the MES

Deloitte understands that a modern MES solution requires an integration platform capable of communicating timely information with sub-systems and other module components.

The platform should support data exchange, routing, redaction, and validation of the data between the modules. The platform is recommended to have pre-built Interfaces that comply with the relevant standards applicable for integration, interoperability, and security. We consider the following aspects as critical for optimal data sharing:

- **Data Security is** an essential part of the Medicaid Enterprise System for protecting sensitive information and complying with regulations and practices mandated by HIPAA. The processes put in place should validate that data is appropriately protected, accessed, and shared according to policy guidelines. We recommend developing security, encryption, and retention policies to secure enterprise data assets from unauthorized access and deploy procedures to monitor data access and security policies, and compliance of these practices.
- **Data Integrity** should be maintained and monitored while exchanging the data across the sub systems and components. We recommend reconciliation, error checking and validation processes to be set up at each system and review the discrepancy reports on a regular basis. SLA's and guidelines to be established to maintain the data integrity by the module vendors.
- **Performance and infrastructure monitoring** are critical to maintain optimal data sharing through the Medicaid Enterprise system. We recommend automated alerts and notification process to be set up to monitor system usage and volume, SFTP failures and transaction failures. We recommend using cloud native services for monitoring and performing system upgrades. The managed cloud services will minimize impacts to the users, reduce cost and improve process efficiencies.
- **Availability** of the Medicaid Enterprise system environment should be high (24x7- 365 days) with back up procedures and in-built redundancy process to minimize the potential disruption to the users. Establish communication process for the scheduled maintenance and downtimes.
- **Data Standards and formats**: The Enterprise system should be capable of reading, transforming, and storing the data in various data standards and formats, ranging from X12, HL7, FHIR, flat files, Electronic Data Interchange (EDI), and 837 to Webservices. The solution should support SFTP tools for file transfers and message queues for processing inbound and outbound Web service requests for data sharing, and API request for Data sharing.
- **Master Data Management/Reference Data Management** is recommended to maintain data integrity across key enterprise entities (Member, Provider and Patient). The MDM and RDM capabilities should be offered for Data sharing both as a file and service across the modules. We suggest a Data stewardship process to correct the system exceptions and data issues as they arise.
- **Enterprise Data Governance** is also an essential component that will enable easier data sharing. Via data governance, consistency in data formats, lengths, types, naming conventions should be enforced to enable sharing of data. Deloitte recommends creating an Enterprise Data Governance Council early on in BMS' modular journey to establish database standards, naming standards and conventions that could be provided to modules being integrated to use as a baseline standard.
- **ODS**: The platform should also house key data needed by the business in the Operations Data Store (ODS) for monitoring, reporting, and retrieval to support cross-module development, testing, and coordination. Additionally, the solution should include pre-built reporting structures to meet the common forecasting and trending analysis requirements.

Summary of Recommendations:

- For data sharing, the platform should include outbound and inbound Interfaces that comply with the relevant standards applicable for integration, interoperability, and security. Sensitive data should be encrypted at rest within the environment and while in transit to protect data while sharing data across various MES components.
- The platform for sharing data should integrate with standard data sources and should be easily scalable to meet the growing data needs over time. It should provide data adaptors and shredders (e.g., parsing mechanisms) that parse and handle numerous health care-specific data formats.

Question#4.2.17

What standards and practices would you recommend with regards to key data governance, master data management, data stewardship, and data-sharing concerns? What approaches do you recommend for engaging business data owners separately from technical data system managers?

Through the course of planning your Medicaid Data Hub, it is important to engage your business data owners and technical data system managers to discuss the purpose and scope of the project and the support anticipated from the team during the timeframe of the project. We compiled a list of applicable standards and best practices we follow that often come up during these early conversations about data stewardship and data sharing:

Data stewardship

- Identify the Data stewards who are more acquainted with both data and the business process behind the data.
- Establish the guidelines, protocols, and requirements for the vendors to identify the subject areas where the data processing, exception and data quality reports are to be generated.
- Define data standards, establish business rules and guidelines for the Data stewards to resolve the issues/discrepancies. Conduct frequent reviews of the data quality reports to assess the gaps in the data stewardship process.
- Create a common business glossary, to support a common business vocabulary throughout the organization.

Data sharing

- Review existing Department security protocols of the Legacy system and define the data sharing agreements between the module vendors. Identify the areas of data which is proprietary information of the vendor and licensing data of the vendor. Establish guidelines for sharing and requesting such information across the vendors.
- Employ a range of standard data formats that support compatibility with source data providers.
- Establish and maintain a metadata knowledge repository to support questions regarding specific data sets, elements, values, or usage in source systems.
- Establish and maintain a design repository of interface specifications, data sharing agreements, and other system documentation that specify how data should be handled and processed.

Business data owners, we define as the people within the Department who are responsible for the creation and protection of accurate data for a program. As the they understand how data in their control will be used by the vendors and sub systems, we recommend engaging them in conversations pertaining to Data access and data security, Identification of PHI/PII and sensitive data, identify data definitions, system process documentation, identifying reporting requirements and business logic for resolution of Data quality issues.

Technical data system managers, we define as the people within the organization responsible for establishing and maintaining the technical controls for Data flow and storage. We recommend technical data system managers are engaged in conversations on the Architecture needs, Data sharing protocols, data storage and data exchange policies and standards, data governance processes.

Summary of Recommendations:

- Establish standards and practices that support the role of data stewardship and preempt data-sharing concerns related to security, performance, compatibility, metadata, and system design specifications.
- Build support for your initiative throughout the Department by engaging key stakeholder groups to discuss project goals, concerns, and planned involvement during the project.
- Review or establish an organizational governance structure that clarifies how data is managed across the enterprise.
- Establish the organizational governance structure early in the program implementation to define that as a base standard for all future modules.

Question#4.2.18

Describe your company's current roles and responsibilities as a fiscal agent, if applicable, in a modular systems environment. Describe how you coordinate with other vendors to incorporate their services in a modular systems environment. What are the key success factors and risks for separating Fiscal Intermediary functions from technical functions?

- A robust product offering with capabilities that align with MITA business processes.
- Scalable infrastructure with potential to handle large Claims and Member volume.
- Flexible interfaces that support standard integration protocols and facilitate interoperability with the MES.
- Limited configurability – any requirements that cannot be met out-of-the-box may lead to significant code/logic change.
- Misalignment with MITA business rules, impacting the Department's ability to complete CMS certification.
- FI product integration protocols not aligned with industry and/or enterprise standards, leading to point-to-point connections and defeating the purpose of an interoperable MES.

Question#4.2.19

Describe the division of responsibilities on successful projects, in relation to a multivendor environment, between vendor and subcontractor Project or Portfolio Management Offices (PMO), and an Enterprise PMO provided by either BMS or a separate vendor?

Based on our experience with MES implementations across multiple states, we have seen vendors and subcontractors' Project, or Portfolio Management Offices (PMOs) manage their individual project milestones, work plans, and deliverables as per contract requirements, whereas an Enterprise PMO is responsible for tracking work and milestones at the State's MES Enterprise level by coordinating with modules and tracking their milestones and progress.

Question#4.2.20

Describe your recommended approach to addressing the complex relationships between a variety of vendors working on separate parts (or modules) of the overall Medicaid Enterprise System. To what degree do you recommend BMS require these approaches in any RFP(s) it issues?

From our experience, Medicaid Enterprise System (MES) solutions go most smoothly when we address data challenges and complex data management relationships – starting with data governance and data quality – early on. This helps agencies avoid challenges and barriers down the road. Below is a summary of our lessons learned on previous and current Medicaid Datawarehouse and BI solution implementations, which we recommend the Department to incorporate these approaches in the RFP to the extent possible.

- Timely access to data is critical to support the requirements gathering and design process. Drafting the data requirements and designing solutions without simultaneously validating legacy data may result in significant rework in future phases.
- It is also important to define a strategy for how the data is used in lower environments, across module vendors to support development and cross module integration testing. We recommend the State to define an obfuscation strategy across the enterprise in the RFP so that the bidders can define their approach in the response.
- Another lesson learned is that the strategy and approach for Master Data Management (MDM) should be clearly articulated in the RFP. The Agency should determine whether the Medicaid Data hub and

Data integration layer will perform this function or whether a standalone MDM tool will handle this function.

- We recommend State to clearly define the roles, data functions, inter-dependencies of the Medicaid Data hub and data integration layer, and each Enterprise sub system to meet the data conversion, data exchange, reporting and analytics needs of the enterprise.

Summary of Recommendations:

- In a multi-vendor environment, addressing complex data management relationships across vendors requires a State defined data governance framework and data quality monitoring framework from the vendor. We recommend the RFP clearly mention the existing or future state governance framework in the RFP.

We recommend the state to define the Master data management, Reference data management strategy and Data stewardship process to manage and standardize the data across modules and sub-systems. We recommend the State to identify the data exchange needs from each module into the Medicaid data hub, identify areas of reporting so that the data management relationships across the vendors could be defined upfront.

Question#4.2.21

What factors (technologies, development methodologies, frameworks, etc.) would you recommend BMS require in an RFP in order to accelerate the DDI of MES modules?

Based on Deloitte's experience in the implementation of a data warehouse solution for modular Medicaid Enterprise systems, we recommend an iterative software development and integration approach for each MES module. So, we recommend the agency to define the RFP requirements for a Hybrid Agile methodology for the modularization and integration of the MES modules. The software development framework should allow iterative design reviews and frequent demonstrations of work in progress components to the State.
While defining the requirements for RFP, we recommend the Bureau to consider stating that the vendor should leverage pre-defined templates, tools and accelerators incorporated in the Standard Integration life cycle phases, to expedite the module integrations and provide additional time for the department to focus on the system design. This will also help in consistency across deliverables and documentation across the enterprise.
The vendor could consider COTS tools or Pre-packaged solutions which adhere to Medicaid data standards and are production proven in other states.
We recommend the solution to have a flexible data model which complies with the MITA (Medicaid Information Technology Architecture Framework) business functions and can be readily enhanced to meet the data needs of the individual modules.
To accelerate the implementation timelines, we suggest the Bureau consider RFP requirements for reusable code components and software that can be leveraged across integrations with various modules. We suggest out of box requirements for pre-built connections between Systems integration (SI) solution and the Datawarehouse solution to accelerate the vendor connectivity to the Enterprise system and applications.
As addendum to the RFP or procurement library, we suggest the Bureau share the existing data model, summary of known Data quality issues, current system challenges State's vision, and suggested timelines for modular integrations. This additional information would help the vendor to define the plan for system implementation and the State could use the response to evaluate the execution strategy of the vendor.

Summary of Recommendations:

- To accelerate development and integration of modules, we recommend the Agency to consider COTS tools or pre-packaged solutions with code components that adhere to Medicaid data standards and production proven in other states.
- We suggest the Agency consider offering timely access to the data to the vendor, interface documentation and reflect the same in RFP. This helps the vendor to perform the data profiling and

initial analysis on Day 1 and helps the vendor to plan for the timelines of vision and analysis phase in the RFP response.

- We suggest the Bureau consider offering the documentation of the legacy MMIS and the various business rules used within the legacy system. This would enable the vendor to review the material prior to design sessions and would help in the progress of the project in a timely manner.
- We recommend the RFP to include addendums for data model, current system architecture, Data quality issues, vision, and timelines for modular integration to help the vendor plan for system design and architecture.

Question#4.2.22

Describe ways you feel BMS should structure an RFP to encourage competition and innovation from Medicaid Enterprise solution bidders.

In a Medicaid Enterprise modular implementation, the RFPs are complex in nature as the RFP must clearly define the enterprise vision and requirements for every module vendor and drive competition among the bidders for an innovative solution with innovative technologies.
Based on our experience in Medicaid Enterprise systems implementations, we recommend the following ways to structure the RFP to encourage competition among non-incumbent and innovative bidders

- Eliminate the incumbent's built-in advantage with the existing infrastructure to ensure the State can perform and apples to apples comparison and evaluation based on requirements defined per its strategy and vision.
- Evaluation criteria should weigh more heavily on capability than price. The scoring criteria should be defined as a mix of vendor's approach to implementation, the proposed team, vendor experience on similar engagement(s), client references and additional capabilities the organization can bring beyond current scope and the pricing for the solution. This encourages the bidders to ideate innovative solutions and helps them compete with the incumbent.
- We recommend the State to share the current system architecture and design and future state enterprise vision as mentioned in 4.2.21. This will level set for the bidders as each of them have access to the same information to frame the RFP response.
- We recommend the State define their vision and let the vendors propose the tools/technology that is best suited for meeting the requirements. This will enable vendors leverage their experience in other states to bring the best in breed technology. The technology/tool can be evaluated based factors such as ease of use, ability to meet requirements.

Summary of Recommendations:

- Eliminate the incumbent advantage due to their ability to leverage existing infrastructure to reduce costs.
- We recommend the State to define the scoring criteria as a mix of vendor's approach to implementation, the value delivered to the enterprise and the pricing. This will drive competition among the bidders to produce innovative system design.

Question#4.2.23

What recommendations do you have for establishing procurement and implementation timelines that help deliver value sooner, reduce risk, maximize Federal Financial Participation (FFP), and achieve Outcomes-Based Certification or Streamlined Modular Certification,?

Implementation of a modular, interoperable MES solution is typically structured in a phased approach. The procurement and implementation for modules should be conducted while running the legacy platform in parallel, as a business continuity fallback for a time, to confirm the new system is performing as required. Over

the past years, Deloitte has shared its viewpoints regarding procurement and implementation approach with many states. We suggest the following:

- The state should bring on its Systems Integrator as first step to establish a framework, standards, and the foundation for the governance of technology, services, and data. It will result in cost saving in the end although it may not want to save money upfront.
- The state should bring on the Data Hub or Data Warehouse Team early! Data is vital to each module and a strong data team can help everywhere.
- The state should consider implementing modules that reduce burden/address current "pain points" and can be carved off the legacy system. Typical modules in most states can include encounter processing, electronic data interchange (EDI), third-party liability (TPL), pharmacy, care management, and finance (focusing on alternative payment models first).
- Fee-for-service claims processing is usually addressed last since it is the most complex function.
- In addition, phased instead of big bang approach will help maximize FFP to cover majority of software, hardware, and labor cost.
- To reduce total cost, the state should keep some cushions in the schedule to absorb delay and have swing tasks for vendors to fill time delays.

Summary of Recommendations:

- We recommend the State to have the procurement and integration of modules while running the legacy platform in parallel, to meet the business requirements and maintain business continuity fallback while the new system is stabilized.
- The Project plan should include buffer time and swing tasks to absorb unforeseen delays from the vendors impacting each other.
- A Phased approach is recommended to maximize Federal Financial Participation to cover most of the software, hardware, and labor costs as well as minimize the risks of big bang approach.

Question#4.2.24

Describe the major trends in your Medicaid Enterprise solution category that you believe BMS should be aware of, including any product or approach changes that you believe will come to market within the next 12 – 24 months. How do your Medicaid Enterprise solution roadmaps stay current with such trends? If possible, please be specific regarding how these trends affect Medicaid, WVCHIP, or healthcare IT in West Virginia.

When looking at the potential major trends that could come to the market within the next 12-24 months (about 2 years), there are a few key trends to consider:

- **Data Aggregation and Public, Secure APIs:** CMS Interoperability and Patient Access final rule emphasizes the need to improve health information exchange to achieve appropriate and necessary access to complete health records for patients, health care providers, and payers. CMS requires that the related services be built using HL7 FHIR standards. Within the HealthInteractive Solution, we have built a subset of FHIR APIs that follow the guidelines that CMS has outlined. Recently this has been a key topic that we anticipate will only grow in demand moving forward.
- **Multi-Cloud Compatibility:** Another key trend that has been observed in the marketplace is the desire for solutions to be compatible with multiple cloud platforms. We are working to stay ahead of this trend by providing options for the platform to operate on multiple platforms. This makes the platform more adaptable and broadens the technology and products that can be leveraged. Additionally, it increases the support that the platform can provide from a compatibility perspective. From an integration standpoint, this provides greater flexibility in working with vendors hosted on different cloud supported platforms. This can be advantageous in helping to ease the integration process.
- **Effective oversight of managed Medicaid programs.** States are increasingly seeking integrated, affordable solutions, and thus are enrolling population into integrated managed care programs to receive services. The proposed rule to modernize Medicaid managed care regulations aims to align the

standards governing Medicaid managed care with those of other major coverage sources, strengthen actuarial soundness payment provisions, bolster efforts to reform delivery systems, ensure appropriate beneficiary protections, enhance program integrity, and require states to establish comprehensive quality strategies for their Medicaid and CHIP programs. BMS will need to define their path for complying with the new regulations, in large part through changes in oversight and performance management of their managed Medicaid programs.

Question#4.2.25

Identify any innovations in your Medicaid Enterprise solution for addressing Medicaid Business Priorities (cost savings, performance efficiencies, improved care outcomes, etc.).

We have invested in our solutions such that they are transformative for healthcare operations and business processes, shifting the narrative for agencies to focus more on health outcomes versus the base needs to providing and paying for health services.
Here are a couple of examples of our innovations with a specific focus on efficiency.

- **Security and Performance Efficiencies:** All our MES solutions include robust auditing and monitoring frameworks, utilizing industry standard COTS products to aggregates component-level audit data with a correlation engine to provide actionable intelligence and proactive alerting and reporting to identify security anomalies, processing issues, system performance, and overall health of the system.
- **Reduced Risk and Cost Savings:** Our solution is delivered as a fully tested SaaS model with pre-built and validated capabilities using a standard portfolio of software products, tools, and automated test suites. This model reuses significant design, coding, and testing of the platform services that are currently implemented as the framework for multiple MES projects, accelerating project timelines for both initial deployment of the integration architecture and iterations of module onboarding.
- **Tighter integration between SI and DW Solutions:** Deloitte's SI and DW solutions are pre-wired to integrate with each other seamlessly. They leverage technology within these modules to automate synthesis and integration. These assets have been thoroughly tested and are deployed in Production environments in other States. Deployment of the solutions that were built integrated with each other ground up not only reduces risks during integration, but also increases performance efficiencies and a successful deployment.

Question#4.2.26

Identify any innovations in your Medicaid Enterprise solution for addressing technical risk management.

- **End-User Configurability and Testing**

We provide several configurable features and frameworks that can be tailored based on both end-user and vendor needs. These configurable aspects of the solution give users more options to align functionality (e.g., content validations or filtering, SSO account management and access approval workflows, reports and dashboards, and alerts/notifications) to meet their business needs. From a testing standpoint, our solution has capabilities that enable users to execute testing using synthetic transactions, facilitating end-to-end workflows without needing to rely solely on module vendors to generate data.

- **Ongoing Technology Refreshes:** Our SaaS solutions are packaged using specific COTS products and we plan for version upgrades and updates periodically to reduce risk. We meticulously track the versions of our product stack and work closely with our vendors to plan the upgrades. This allows our solutions to stay current with the market trends and mitigate risk related to the support available for various COTS product versions.
- **Legacy Integrations:** Another aspect for addressing technical risk management comes in the form of legacy system integrations. The ability to effectively integrate with legacy systems requires flexibility as diverse options need to be considered. This is a key part of filling the role of the MES SI and EDW

vendor within a Medicaid Enterprise. Our solution offers avenues to facilitate integration with legacy vendors to confirm that existing business processes are not disrupted.

- **Implementation of FHIR Standards:** We continue to rapidly evolve the platform, releasing new product features and integration assets at a minimum of semi-annually. Through our latest product release, we have jump-started developing features supporting compliance with recent CMS guidance, including the 21st Century Cures Act interoperability final rule.

Question#4.2.27

Describe 1 to 3 use cases where innovations in your Medicaid Enterprise solution would apply and the value your Medicaid Enterprise solution would add when applied to them.

We believe, in addition to the functions the MES Vendor role is typically expected to perform, there is always room for additional applied knowledge from real-life experience. Through our current implementations, we have seen several items that, if planned for by BMS, can greatly reduce surprises, potential roadblocks, and even unexpected costs.

- **Technologically Ready Platform** - Preparing for the transition from existing legacy system to the modular environment is important. But equally important is selecting a platform that can support healthcare trends such as telehealth and virtual health models will allow you to prepare your MES for future innovations and trends in service delivery.
- **Electronic Data Interchange (EDI)** - It is important to look beyond basic EDI use cases and find ways to leverage the solution to cater for other value-added services such as real-time claims adjudication. Response and resolution become more acutely focused on a real-time claims processing environment. Automation related to edit/exception resolution, front end focused editing allowing for real-time correction prior to submission can be embedded into a standalone EDI gateway, and near real-time data made available for accurate claims processing rise to the surface.
- **Focusing on a Customer Centric Model** – As the final rule for interoperability and patient access was released by CMS, one of the key tenants that was evident is to provide a focus on the customer, ease of use and personal access to data. Applying this across the enterprise in planning will not only align to this but will continue to shift the quality of experience for the true customer, members receiving coverage that aligns with their health needs.

Deloitte supports our Medicaid clients to kindle the innovation mindset and make project teams aware of what is going on in the larger health care ecosystem. As a market leader not only in healthcare but in Medicaid, we have specific teams within Deloitte that focus on healthcare trends and the vision of Medicaid for the future. The goal of these teams is to be constantly seeking, incubating, and testing new concepts and ideas in the market. This helps us keep our clients and our teams current on what is happening today and focus on where health care and Medicaid may be tomorrow.

Question#4.2.28

In the states where you have implemented, what have been some of the higher value outcomes? What performance metrics were you able to provide to substantiate this success?

Deloitte's lessons learned are based on our long history of providing program, technical, and operational consulting to state Medicaid organizations, innovation in modular MES modernization with our existing MES clients, and our experience providing enterprise architecture and systems integration services in both the public sector and commercial industries.

Here are some of the features or approaches which resulted in elimination of information and operational silos and positions State Medicaid programs to be more proactive than reactive:

Use of Operational Data Store (ODS)

In our experience of implementing SI platform in four states, utilizing the Operational Data Store (ODS) as a centralized repository of transactional MES data within the SI platform has been proven to be extremely valuable. Some benefits are as follows:

- **Centralized Data for Ad Hoc Reporting:** The ODS may act as a centralized Source of Record for cross module data. The ODS can be queried in real time which provides systems and users immediate access to transactions processed by the SI platform.
- **Detailed Auditing and Reconciliation:** Given the distributed nature of modular MES solutions and the sensitivity of Medicaid data, it is important that the ODS provide in-depth auditing functionality to track transactions from the time they are created to their most current state.

Approach to Single Sign On (SSO) and Multi Factor Authentication (MFA)

We have implemented the SSO/MFA functionality across a wide array of applications/modules in client environments, including web-based and native, such as client based or mobile. Some of the lessons that we have learned during these implementations are as follows:

- **Network connectivity**: We recommend mitigating project schedule risk by always including additional time upfront to establish the connectivity before the actual development starts.
- **Consistent Design/Integration Patterns**: It is our experience that the requirements and design sessions among the vendors run smoothly if the SI Vendor and BMS can agree on a standard set of integration patterns such as SAML, OIDC and HTTP header-based integrations and limit the discussions to the approved standards.
- **SSO and MFA for Infrastructure components**: BMS should include requirements for SSO/MFA capabilities for supporting applications like the SIEM, among others and Infrastructure components like Firewalls, API Gateways etc.
- **SLA Management:** It is important to establish an SLA management process that measures work performance and promotes continuous improvement while providing BMS with insight into the quality, efficiency, and timeliness of the overall service delivery.
- **Monitoring and Reporting:** Deloitte recommends BMS insists on having prebuilt, real-time/near real time dashboards, reports, alerts, and any other monitoring tools available for SLA compliance and monitoring.
- **Cross-Vendor Coordination:** It is important to have an Integrated Master Schedule (IMS) that incorporates regular planned updates from each module vendor for both in-flight activities and planned future tasks. Consistent review of the IMS allows each module team to understand expectations and implications before, during, and after integration which is of paramount importance for operational effectiveness.
- **Enterprise Release Management:** Enterprise Release Management is critical to the success of the MES. Managing the releases across all modules helps manage the associated risk and putting needed controls in place.

Question#4.2.29

Discuss any experiences you have had integrating your Medicaid Enterprise solution with legacy system management and lessons you have learned for implementing new Medicaid Enterprise solutions. Do you recommend any specific approach for modifying, interfacing with, and managing the legacy system while implementing a new Medicaid Enterprise solution?

Implementation of a modular, interoperable MES is typically structured in a phased approach. The deployment strategy should be conducted while running the legacy system in parallel as well as providing necessary support for legacy 3rd party systems, as a business continuity fallback for a time, to confirm the new system is performing as required. Over the past years, Deloitte has shared its viewpoints regarding implementation approach with many states. Based on our experience with similar projects, we have included the following lessons learned:

- DoH should address key opportunities for data cleansing by implementing Provider, Member, and Reference Data modules. This helps establish clean systems of record, specifically starting with publishers, across modules.
- DoH should then consider implementing modules that reduce burden/address current "pain points" and can be carved off the legacy system.
- Onboarding multiple modules at the same time introduces cross dependency between modules which has resulted in unanticipated delays. Onboarding one module at a time has been seen beneficial from a schedule perspective.

A phased strategy should include coordination and comparison of legacy and new MES solution testing and process coordination between the legacy and the new MES solution. Points for consideration include the following:

- **Staffing**. Staffing needs and experience can be modeled based on the legacy platform, but should factor experience with new processing, tools and technologies, employee flexibility, permanent vs. temporary staff, and the additional costs of acquiring new staff and overhead until the legacy system is no longer in use.
- **Training**. System and business process workflow training is planned or considered early on in terms of project schedule, resources, logistics, and training environments. Training considers temporary legacy processing as well as MES program help desk training depending on the scope of vendor procurements.
- **Data conversion and migration**. Modules identified for the phased approach need to convert and migrate data to the new platform. When implementing in a phased approach, data values can be different between the old and new platforms and require crosswalk lookups or translations as well as updates in both systems. Careful planning and coordination with related modules also must be factored into data conversion processing.
- **Process analysis and design**. In a phased approach, it may not be possible to completely have all business process functionality in the new system, bringing in partial functionality in various phases. High-level analysis and designs are completed collaboratively with all stakeholders to identify gaps; plan for staffing, interim process needs, and training; and determine any potential impacts to data conversion and migration.
- **Testing and release management strategy**. In some respects, a phased approach allows for a more focused approach across all testing phases due to the more targeted deployment functionality. That said, additional complexities arise when factoring in the increased testing required due to the overlap in processing and coordination of business processes and data between the old and new platforms.

Question#4.2.30

What staffing levels, including experience and skillset, are typically required to implement your Medicaid Enterprise solution? What are the suggested state Medicaid agency staffing levels to support DDI and ongoing operations? How do these staffing requirements compare to other offerings in your Medicaid Enterprise solution?

Our recommended team structure is informed by our experience. Below we have provided some recommendations for the skills, experience, and time commitments of key staff you should expect from vendors seeking to deliver either of these core MES modules.

Project Role	Role Description	Years of Experience	Education / Certifications	Dedicated Full Time Employee (FTE) or FTE %
Contract Manager	Primary executive responsible for client	10 years of experience with	Bachelor's degree	20-40% of time on project; varying by

Project Role	Role Description	Years of Experience	Education / Certifications	Dedicated Full Time Employee (FTE) or FTE %
	relationship and management of the contract.	Systems Integration and 2-3 years of direct experience with the MES implementation.		project phase (e.g., greater during project initiation)
Project Manager	Responsible for delivery of the project, contract scope, and SLAs.	5 years of experience with Systems Integration and MES. PMP certification is preferred.	Bachelor's degree	100% during SI platform DDI and MES module integrations
Integration Lead	Leading functional team, Technical team collaboration, configuration oversight, deliverable content development / internal review	5 years of experience with Systems Integration and MES	Bachelor's degree	100% during SI platform DDI and MES module integrations
PMO Lead	Leading Project Management team, responsible for building and maintaining integrated project plan and keeping it updated with input from various project teams.	5 years of experience with leading PMO and MES	Bachelor's degree	100% during SI platform DDI and MES module integrations
Functional Lead	Leading functional needs of the module including functional design, communication of changes.	5 years of experience with Systems Integration and MES	Bachelor's degree	100% during SI platform DDI and MES module integrations
Testing Lead	Test scenario creation / execution, testing team collaboration, deliverable content development/review	5 years of experience with Systems Integration and MES	Bachelor's degree	100% during SI platform DDI and MES module integrations
Conversion Lead	Leads overall data conversion from legacy.	5 years of experience in Systems Integration and MES	Bachelor's degree	100% during Initial Conversion for the SI platform ODS

Project Role	Role Description	Years of Experience	Education / Certifications	Dedicated Full Time Employee (FTE) or FTE %
				50% of time during ongoing conversion (just in time for MES module needs)
Solution Architect	Technical team collaboration, solution evolution and compliance / capability reviews.	5 years of experience in Systems Integration and MES	Bachelor's degree	100% of time on project
Security Lead	Security team collaboration, configuration oversight, deliverable content development / internal review	5 years of experience in Systems Integration and MES	Bachelor's degree	100% of time on project
Technical Operations Manager	Technical specifications, system monitoring, defect resolution, technical oversight	5 years of experience in Systems Integration and MES	N/A	100% of time on project, starting with MES module integrations and continuing throughout O&M
Data Architect	Leads data architecture design of the Enterprise Data Warehouse (EDW) and Operational Data Store (ODS) to support cross-module data interoperability, operational reporting, and data analytics.	5 years of experience in Systems Integration and MES	Bachelor's degree	100% of time on project, starting with MES module integrations and continuing throughout O&M

Question#4.2.31

Describe the System Development Lifecycle (SDLC) approach that you use for implementing your Medicaid Enterprise solution. Can your SDLC approach be incorporated into an environment that uses a traditional "waterfall" SDLC approach?

What about "agile" methodologies to support the implementation of your Medicaid Enterprise solution? If so, how can this be accomplished?

We understand that MES projects are unlike other traditional implementations with each module potentially adopting their own SDLC approach. Keeping that in mind, we at Deloitte have developed a robust MES specific SDLC approach we call MES Lifecycle Management (MLM), which is tailored for our Medicaid clients. MLM is a hybrid-agile framework which adapts tested methods and assets developed and refined over 50 years of successfully implementing and managing complex system integration projects. MLM includes premade

document templates to accelerate deliverable and documentation creation as well as methods that guide tracking, updating, maintaining, and versioning of documentation deliverables. It also includes project management templates and basis of estimates informed by our prior implementations, test cases to support validating integrations, as well as data maps and implementation guides to assist module integrations and certifications. As each MES module has its own set of sub-phases from inception to operations, our Hybrid Agile approach provides flexibility to manage these phases simultaneously.

Additionally, Deloitte provides Enterprise PMO services across the MES environment for the Department and the vendors by bringing our collective experience from four modular MES implementations. We tailored our PM methods and tools to work in this new modular environment to support both Waterfall and Agile development methodologies by identifying the integration points between modules, facilitate communication between the module vendors, and develop a cohesive schedule.

Question#4.2.32

What is the typical duration of a project to implement your Medicaid Enterprise solution? How does this timeline break down across the planning and DDI phases?

We recommend the implementation of the System integration (SI) layer to be a pre-cursor to the Medicaid data hub implementation. The duration of the implementation of COTS product or SaaS solution for System integration platform is usually **6-9 months**. This is only a viable timeline if the vendor provides a pre-built platform vs. a ground up development effort. During this time frame, the base SI platform should be stood up over the course of 3-4 months including initial planning, followed by 3-4 months of configuration to align to the state's specific needs, stand up of project management processes and artifacts, with a final month of consolidated readiness testing.

We recommend bringing the SI vendor in towards the front end of the procurement processes to stand up their platform and be ready to guide and provide technical and integration governance that can be incorporated into the other module RFPs.

The implementation of the data hub can overlap with the SI however, it is generally best practices for some lag. These two components Systems Integration and Medicaid Data Hub can be stood up in parallel. We recommend **18-24** months for the implementation of a full-service solution from contract reward to exit of current MDW vendor.

Once the Medicaid Data hub and the Service integration layer is operationalized and working in tandem with the legacy data, we recommend the piece wise new business module(s) integration with the Medicaid data hub based on the priority defined by the State. With each module integration, the goal is to enhance the Department's ability to forecast, analyze trends, and better target health intervention programs. On an average each module integration might take **4 to 8** months depending on the complexity and scope of work.

Question#4.2.33

What do you see as the key cost drivers for implementing your Medicaid Enterprise solution? What recommendations do you have for managing MES costs and demonstrating outcomes that mitigate any unnecessary costs of a Medicaid Enterprise solution?

Provided below is a summary of the key cost drivers we have experienced through our implementations of multiple MES solutions since 2016.

Key Cost Drivers

- RFP requirements that are not specific enough for all vendors to respond equally or do not allow for solution flexibility.
- O&M services and required staffing levels.
- Number of integrations and timing of integrations.
- Number of members, throughput, and response performance (e.g., transactions per second) for business transactions.
- Challenging contract terms and conditions, such as unlimited liability, broad indemnities, lengthy warranties, overly severe SLA's, and penalties.
- Lack of detail on the anticipated state staffing which will support the project objectives, such as related to dedicated PMO, testing, or data stewards/governance.
- Roadmap for the term for the base contract year, optional years, and any incentive years future modules to be procured.
- Existing details (architecture, components, etc.) on the legacy system and the integrations expected as the new modules are onboarded.
- The location where work should consider be performed.
- Subcontracting requirements.

Recommendations to manage cost:
With our experience in responding to and executing large scale MES projects, we have curated a list of factors that affect fixed priced projects:

- **Integration Task Orders** – We have seen other clients preferring a fixed price approach for the DDI phase of the integration architecture with the payments tied to deliverables. After that phase, integration pools for refinement via task orders provide flexibility given many integration details are not known prior to the selection and onboarding of those module vendors.
- **SLAs** – SLAs for an SI platform commonly consists of agreements that are related to the technical capabilities of a system, supportability, and lifecycle costing and how they align to the business goals for BMS. Since the SLAs have a direct impact on the pricing, we recommend refining the SLAs with the selected SI Vendor during the negotiation phase to align the SLAs to the business processes and solution selected.
- **Cross-Vendor Coordination** – Each module RFP should have clear roles and responsibilities for each module vendor. This should include the both the program and project management functions. It should be clear where the SI role begins and end and where the module vendors role begins and ends. Ambiguity in the role of the SI versus the module vendors increases confusion, risk, and therefore cost. It is important to have an Integrated Master Schedule (IMS) that incorporates regular planned updates from each module vendor for both in-flight activities and planned future tasks. With many stakeholders moving at the same time, understanding the implications of each task and the potential impact across the enterprise is of paramount importance. Improper planning can lead to schedule delays and additional cost for BMS.
- **Fewer Customizations** – Keeping the number of customizations and ad-hoc requirements low would help in mitigating high costs.
- **Plan for unexpected issues to arise** – External factors beyond your control can occur throughout your MES journey that impede critical project tasks despite your most diligent planning and risk mitigation efforts. Unexpected issues can impact a module's project schedule or ripple throughout the master MES implementation plan. To manage idle costs incurred from delays, we recommend BMS define secondary initiatives to maintain productivity during periods where progress on critical path activities is blocked.

Question#4.2.34

Using your Medicaid Enterprise solution as an example, what guidelines do you recommend for "phasing in" your modules and/or services? How do these guidelines maximize efficiency and/or minimize risk? What constraints would they place on DDI partners and BMS?

Using a phased implementation strategy requires additional considerations for staffing, training, data conversion and migration, process conversion, and enterprise testing. A phased strategy should include coordination and comparison of legacy and new MES solution testing and process coordination between the legacy and the new MES solution. Points for consideration include the following:

- ***Critical path first steps***. Module procurements and/or a detailed analysis are requested and conducted on the phased approach. Once modules are procured for the initial phase, modules collectively finalize high-level designs and identify any gaps in the approach. If not already in place, MES program PMO and governance are established. Tentative MES Master Project Schedules are created and confirmed with all stakeholders. High-level design and planning for data conversion and migration are also completed at this time as well as high-level design and planning for temporary processing to keep the legacy system in sync with the new MES platform.
- ***Staffing***. Staffing needs and experience can be modeled based on the legacy platform, but must factor experience with new processing, tools and technologies, employee flexibility, permanent vs. temporary staff, and the additional costs of acquiring new staff and overhead until the legacy system is no longer in use.
- ***Training***. System and business process workflow training is planned or considered early on in terms of project schedule, resources, logistics, and training environments. Training considers temporary legacy processing as well as MES program help desk training depending on the scope of vendor procurements.
- ***Data conversion and migration***. Modules identified for the phased approach need to convert and migrate data to the new platform. When implementing in a phased approach, data values can be different between the old and new platforms and require crosswalk lookups or translations as well as updates in both systems. Careful planning and coordination with related modules also must be factored into data conversion processing.
- ***Process analysis and design***. In a phased approach, it may not be possible to completely have all business process functionality in the new system, bringing in partial functionality in various phases. High-level analysis and designs are completed collaboratively with all stakeholders to identify gaps; plan for staffing, interim process needs, and training; and determine any potential impacts to data conversion and migration.
- ***Testing and release management strategy***. In some respects, a phased approach allows for a more focused approach across all testing phases due to the more targeted deployment functionality. That said, additional complexities arise when factoring in the increased testing required due to the overlap in processing and coordination of business processes and data between the old and new platforms.

Question#4.2.35

What do you believe would be the optimum duration and the minimum duration for DDI of your Medicaid Enterprise solution?

Please refer to our response to Question# 4.2.32.

Question#4.2.36

List and describe the documentation developed by your company and/or the state Medicaid agency that is essential to DDI and operations of your Medicaid Enterprise solution.

In our experience, the pre-migration/pre-planning phase is crucial for any legacy data migration project and having access to the right documentation will confirm success during the design, development, and migration of legacy data to the new MES solution.

In preparation for the start of requirements gathering and design phases, any current documentation BMS has regarding existing system operations, data processing, or reporting would be valuable to the MES module teams. Though complete documentation of your existing system is not a prerequisite, it does reduce the effort (and costs) teams spend ramping up their understand of existing system functionality to be able to plan your transition from your current state to your new future state MES solution. We recommend gathering the following documentation regarding your existing system where it is available to support vendor onboarding:

- ***As-is System Designs:*** Having a clear understanding of the existing system(s) technical and functional documentation and the data flow diagrams for interfaces are very critical while designing a data migration project. A well document as-is system overview document can help the vendors in the initial pre-migration assessment of the source legacy application and to define the detailed migration plan.
- ***Data Dictionaries:*** Access to the latest catalogue of all information on the data in the current systems can be beneficial in the pre-migration phase to better understand the data and the relationship between its elements.
- ***Current Sizing and Usage Reports:*** It is important to understand the full scope of the data to be migrated and volumetrics associated with the current systems early in the planning phase. This information can give valuable input to forecast the hardware requirements for the target system, to evaluate the database growth, logical and physical design of the new database.
- ***Data Quality Reports:*** If available, we recommend the Department to share documentation related to data quality management for the current system. Understanding the current system approach to the data quality plan and having access to the list of existing data quality issues can reduce the time that is needed for data auditing and profiling.

BMS Process Documentation: Identifying documentation needs early can limit any last-minute asks for large volumes of documentation or proof points needed to satisfy CMS requirements. Determining the maturity for each MITA business process of a vendor can help meet the documentation goals of the State. It provides the ability to capture the maturity level of business processes (as-is, to-be) and associate-related documentation which supports easier MITA artifact creation and ultimately, CMS certification.

The types of documentation we routinely prepare for our MES implementations that you may expect vendors to provide at the start or end of key phases of the project SDLC are listed below. This is not intended to be comprehensive list of project deliverables, and you should expect some variation of deliverables in this list based on specific MES modules.

Document Name	Description
Project Management Plan (PMP)	Practical description of the Contractor's plan for project management and control mechanisms, including staff organizational structure, progress reporting, major decision-making, signoff procedures, and internal control procedures. The plan will indicate flexibility in meeting changes in program requirements and coping with problems, including how project delays will be addressed should they occur. The plan will include assurances that sufficient resources and knowledgeable, experienced staff are available to meet the project schedule.
Project Work Plan	The work plan document consists of high-level milestones and their associated subtasks required. For each task, the document can

Document Name	Description
	document additional details such as Baseline dates, revised dates, owners, hours of effort, percentage complete, etc. Additionally, key project metrics such as Scheduled Performance Index (SPI) can be generated. This metric identifies the actual amount of work (of tasks in the work plan) completed compared to the amount of work expected to have been completed at a given point in time.
Resource Management and Staffing Plan	This document includes key staffing details such as staffing levels and approach, including organization chart and key personnel for each phase. Provides a process for replacing key personnel within Agency-defined timeframes and procedures for back-filling key personnel during the transition. If applicable, it also includes resource management of Subcontractor staff and confirmation of Contractor's responsibility.
Communication Plan	Describes the communication that will occur on the project and how it will be managed. Includes details about the various types and means of communication, communication channels, communication flow within the organizational structure, escalation, guidelines for meetings, dissemination of knowledge, and communication effectiveness.
Risk Management Plan (RMP)	Describes the appropriate methods, tools, and techniques for active and ongoing identification and assessment of project risks; development of risk avoidance, transfer, mitigation, or management strategies; contingency Planning/Business Continuity Plan, as applicable; approach to monitoring and reporting of risk status throughout the life of the project including procedures for documenting, resolving, and reporting issues and risks identified by the Contractor or Agency.
Quality Management Plan (QMP)	Describes the use of best practices, standards on timeliness, accuracy, and completeness for performance of, or reporting on, operational functions or technical functions. Identifies which quality standards are relevant to the project and determines how they can be satisfied. The plan describes the implementation of quality events such as peer reviews and checklist execution by using various quality tools such as templates, standards, and checklists.
Change Management Plan (CMP)	Guides the management of changes with the project in a rational and predictable manner so that the Agency and Contractors can plan accordingly to increase the value of IT resources and services.
Defect Resolution Plan	Details how all system defects will be managed, graded, resolved, and documented in both the Contractor's solution as well as how the Contractor will work collaboratively with other Contractors whose components and products are implemented into the technical platform.
Requirements Traceability Matrix (RTM)	Document ensures that the project's scope, requirements, and deliverables remain as originally procured when compared to the baseline. The RTM will create a way to trace the original deliverables through agreed upon changes to the project's completion.
Hosting Plan	Describes technical detailed list of all technical specifications related to hosting all system environments, third party agreements, hosting

Document Name	Description
	provider certifications, key personnel, disaster recovery processes and business continuity approach (as it relates to hosting).
System Security Plan	Documents the current level of security controls within the project that protects the Confidentiality, Integrity and Availability (CIA) of the system and its information. The document will be based upon the Centers for Medicare and Medicaid Services (CMS) Acceptable Risk Safeguards (ARS) to assess CIA and NIST SP 800-53 Rev 4.
Testing Plan	Includes an explanation and cadence of all system, technical, functional, and data-related testing that will be completed by the Contractor. The Testing plan also includes a detailed approach to testing all interfaces sharing data with the solution. This testing can include APIs, mapping, ETL processes, scheduling of updates, security controls relevant to data transmission and interfaces and performance. The plan defines the exit criteria which, when met and approved by the Agency, provide evidence of the completion of the test effort.
Data Management, Data Conversion, and Migration Plan	This plan consists of three efforts: 1) Data Management - a comprehensive data management, conversion, and migration plan during the requirements phase, that provides details and duties related to data management and stewardship. 2) Data Conversion and Migration - details the approach, processes, quality, testing and security aspects of conversion of legacy data prior to go live and the migration of data from the Operational Data Store or the Data Warehouse. 3) COTS Data Integration Plan: defines the approach to integration of component systems and interfaced system data.
User and Technical Training Materials	Training document containing technical architecture and standards used across the project so that technical project team members and end users can rapidly understand and quickly become productive.
Business Continuity/Disaster Recovery Plan	Documents an approach to cover situations that could interrupt the ability of the Agency to access and/or use the system for business purposes. The Plan shall address recovery of business functions, units, processes, human resources, and technology infrastructure; backup strategy and recovery process; communication protocols and process for restoring operations in a prioritized order.
Go Live Checklist	Go Live refers to the stage when the complete, tested application code base is promoted to the production environment and the system is deemed to be operationally and functionally ready to be used by end users. This document presents the acceptance criteria summary for the Agency to approve Go Live.
MES Module System Documentation	Other MES system documentation includes, but not limited to: Data dictionaries - centralized repository of information about data such as meaning, relationships to other data (data lineages), origin, usage, and format. Entity Relationship diagrams - diagrams which display the relationship of entity sets stored in a database. System architecture designs, Data exchange control documents, Data flow documents – Documents detailing the architecture and flow of data from ingestion, through the solution, and to the end user. This

Document Name	Description
	includes data exchange between other systems. Report & Screen/Page design documents – document consists of layouts and data items for reporting pages and dashboards.
Lessons Learned/Turnover Plan	Describes lessons learned throughout the project life cycle and specific risks/mitigations based on the experience of the project team during the project development and operations. The turnover component includes proposed approach to turnover, tasks and subtasks for turnover, schedule for turnover, entrance and exit criteria, readiness walkthrough process, documentation update procedures during turnover, and description of Contractor coordination activities that will occur during the Turnover Phase, that will be implemented to ensure continued functionality of System and services as deemed appropriate by the Agency.

Question#4.2.37

Detail how your Medicaid Enterprise solution could support BMS in improving data analytics and reporting capabilities, data sharing initiatives, and overall confidence in health data.

Our solution's data analytics modules consist of pre-configured components such as T-MSIS, federal reporting, trend analysis, and advanced analytical capabilities like predictive algorithms. These modules drive organizational focus to how your data can be used rather than focusing on having to develop the reports for compliance purposes. Prior to the availability of modular solutions, organizations spent most of their implementation time and resources solely on meeting federal requirements and were forced by system constraints to neglect equally important activities related to improving health outcomes.

With a new Medicaid Enterprise solution like ours, BMS can use enhanced analytics and reporting tools that drive performance improvement of the program. Our modular systems contain pre-configured reports and dashboards that allow organizations to move directly to data validation instead of designing these tools from scratch. The same holds true for data transformation and aggregation activities as these solutions have a requirement of receiving data in a pre-defined format, which can be configured more quickly than designing a full-blown data transformation component. A proper MES solution should include embedded data quality checks and master data management capabilities which allow organizations to standardize their data and create processes for data governance.

To enhance data sharing and reach all types of end users, our solution provides a user-friendly, graphical interface that does not require structured query language (SQL) skills, database process, or understanding extract/transform/load (ETL) procedures. End users can view data in a variety of visualization formats, including graphs, tables, charts, maps, and dashboards. Authorized users can configure their own ad-hoc reports based on business needs and are able to automate reports on a pre-defined basis to reduce rework and improve operational efficiency.

Ad-hoc querying and self-service capabilities also account for the types of interactions and different user types of the system that can be integrated into a single, unified user experience. Given that there are different users in areas such as finance, care management, and operations, ease of self-service includes the ability for multiple features and capabilities for analytics to be deployed within a single user interface using Single Sign On to integrate components from multiple modules. This avoids multiple logins to different tools for different users. Whether it be analyzing cost trending, searching for program integrity events, assessing utilization patterns, or

identifying people needing follow-up visits, our data analytics user experience is streamlined and consistent across user groups.

Our solution further contains a certified HEDIS engine which allows for the monitoring of population health outcomes as reported by payers. Other public health reporting capabilities include chronic conditions reporting, groupers, episodic care, and social determinants of health. As organizations shift to pay-for-performance models and other alternative payment models, analytic solutions must allow program and policy teams to understand which MCOs are producing better outcomes and how these outcomes are being achieved. And to address quality improvement initiatives, our solution allows for reporting on gaps in care, provider incentive program outcomes, geospatial analysis, and levels of care compliance.

Question#4.2.38

Describe or illustrate your data visualization capabilities.

Business intelligence and analytics solutions are advancing each year in terms of performance, system maintainability, and overall business usability. We've summarized below some areas for emerging technologies and designs that are among our data visualization capabilities we recommend you consider for your future solution.

Extensible Data Model: The idea of planning ahead for your data warehouse to be flexible and extensible to support future needs is not a new idea, although adherence to this approach often gets sidelined as organizations race to build out analytics solutions that satisfy the current needs of the day. This causes the data model to become siloed, hard to manage, and difficult to extend for new requirements. We strongly recommend that you design your data model with standards for data conformity and provide a strong governance structure that manages all new data sources to be integrated with a focus on extending the base model in support of your future vision. The solution should include an integrated and extensible data model which complies with federal reporting requirements and supports the complexities of point-in-time reporting, including the temporal requirements for eligibility and is designed to perform analytics across subject areas with various data domains including provider, member, claims, encounters, SUR, MAR, T-MSIS, third party liability, financial, prior authorization, vital statistics, electronic visit verification, program integrity, pharmacy, dental, behavioral health, and public health, as well as other external sources such as health information and health benefit exchanges.

Leverage Cloud Technologies: More and more state agencies are migrating their on-premises solutions to the cloud to leverage the benefits of flexibility, scalability, superior processing power, and uptime/automatic failover and disaster recovery options. Hosting costs have become competitive as more service providers have entered the marketplace. Apart from maintenance costs, many cloud hosting providers offer cloud native administration tools that make it easy to manage data, ramp up performance during peak usage, and monitor system operations. Columnar-organized cloud databases, a new trend in database technologies, provide substantial performance benefits over traditional row-based databases when utilized for data analytics. The rise of Big Data has made it possible to store massive amounts of structured and unstructured information in what historically was maintained on large file servers. We recommend that the agency considers leveraging cloud technologies for designing their DW/DSS.

Automation: Applicable to both cloud-hosted and on-premises solutions, we also see a push towards greater automation within data warehouse platforms. Automation entails the optimization of existing data integration processes, reports generation or creation, and transfer of data extracts which often run with the support of scheduling software to trigger processes at fixed times. Efficiencies in development costs and timelines can be built through automation and this can help the agency in the long run by reducing the need of manual effort. We recommend the Department considers automation techniques for designing their DW/DSS.

Integrated Portal: We recommend an Integrated Portal for the DW/DSS platform to support multiple stakeholder groups, such as members, providers, State program and administrative staff, and reporting users supporting the business modules. The features should include single sign-on access and multi-factor authentication for enhanced security, self-service account management features (e.g., password reset, online help, and contact forms).

Security Controls: The solution should support Internet security functionality at a minimum to include, the use of firewalls, intrusion detection/intrusion prevention (IDS/IPS), https, encrypted network/secure socket layer (SSL), and security provisioning protocols, such as secure sockets layer, and Internet protocol security (IPSEC). The solution should also provide a role-based access control model based on the principle of least privilege throughout its technology components, with a goal of minimizing the risk of unauthorized use or disclosure. Finally, solution should include capability for masking, suppressing, and protecting sensitive data in lower environments and other environments, as needed.

Semantic Reporting Layer: The solution should consist of a semantic layer and reporting packages organized by standard Medicaid subject areas for BI reporting. Data presented in this manner enables business users to utilize outputs from BI and data analytics without technical expertise and detailed knowledge of the source data feeding the data warehouse.

Besides the points suggested above, the solution should also be able to handle the following functions that support data visualization and advanced analytics work:

Function	Our Response
Ability to ingest data from multiple sources in different formats	Each system or module has its own data model and hence the data exchange with the Medicaid Data hub will have an inconsistent data format, data standards, data history, and data quality. Standardization across the Medicaid enterprise is essential to mitigate data challenges for reconciliation and reporting. Defining standards and setting expectations on data quality and data governance will help the vendors understand the scope of services required. The Enterprise system should be capable of reading, transforming, and storing data in various data standards and formats, ranging from OLTP replication, X12, HL7, flat files, Electronic Data Interchange (EDI), and 837 to Webservices. The solution should support SFTP tools for file transfers and message queues for processing inbound and outbound Web service requests for data sharing.
Ability to process extract, transform, and load (ETL) and map data from multiple sources	Extract, Transform, and Load (ETL) component provides the execution framework and serves as the primary mechanism for converting and loading data into the ODS and the EDW. This includes data extraction, cleansing, transformation, standardization, exception handling, validation, quality assurance, and creation of an audit log in both batch mode and real time. The ETL process should allow the State to extract data from various modules as the information collected from various external and internal sources must be unified and transformed into a format suitable for the operational and analytical processes. We recommend a solution is pre-packaged with a Medicaid- specific physical data model with pre-existing ETLs that are configurable and customizable to meet each state's needs.
Ability to generate reports and notify interested users	Data and analytics modules consist of pre-configured components such as T-MSIS, federal reporting, trend analysis, and advanced analytical capabilities. Use of these modules drives organizational focus to how the data can be used rather than focusing on having to develop the reports for compliance purposes. The users should have the ability to view data in a variety of

Function	Our Response
	visualization formats, including graphs, tables, charts, maps, and dashboards. Authorized users should have the ability to configure their own ad-hoc reports based on business needs and be able to automate reports on a pre-defined basis to reduce rework and improve operational efficiency. These interactive reports should provide the notification services to alert the necessary parties based on the configurable conditions outlined. The chosen solution should offer reporting capabilities to fulfill the Agency's federal and state reporting requirements such as T-MSIS and CMS 64, 416, and 21 reports. Having these reporting capabilities as part of the solution facilitates the implementation process.
Ability to have authorized users to perform ad-hoc queries	Marketplace analytics solutions differentiate themselves in ease of performing ad-hoc querying and self-service capabilities through providing a solution that requires limited end user technical knowledge. When choosing an analytics solution, the Department should choose a solution that provides a user-friendly, graphical interface that does not require structured query language (SQL) skills, database process, or understanding extract/transform/load (ETL) procedures. Ad-hoc querying and self-service capabilities should also account for the types of interactions and different user types of the system that can be integrated into a single, unified user experience. Given that there are different users in areas such as finance, care management, and operations, ease of self-service includes the ability for multiple features and capabilities for analytics to be deployed within a single user interface. This avoids multiple logins to different tools for different users and that ad-hoc querying can be done in several ways through one place. Whether it be analyzing cost trending, searching for program integrity events, assessing utilization patterns, or identifying people needing follow-up visits, the user experience is streamlined and consistent across user groups.
Ability to publish both external and internal visualizations in a searchable environment	The solution should have a centralized unified portal with embedded search functionality that offers integration with multiple BI tools leveraged as part of the solution. A unified portal creates a seamless experience for the business users as they go from one tool to another based upon the specific use cases. Through a portal, the Department can publish reports and visualizations for consumption by both external and internal users. A security layer for user authentication can further restrict access to non-public reports while additional user authorization groups can control permissions for multiple user groups within the organization. A best practice for external visualizations is a segregated BI environment containing no PHI to reduce the risk.
Ability to support robust data governance model requiring in depth metadata management to classify and authorize access in accordance with multiple business rules associated with federal and state laws	Your vendor should bring proven tools that support the ETL processes. These tools are equipped to manage, validate, and improve the quality of the data being migrated. Experienced vendors will use metadata management tools to track data lineage from source to target. For example, as part of our MES solution, we document all source to target mappings and within the metadata tool business and technical users can identify the source of each data element and any transformations that take place as data traverses the system.

Question#4.2.39

How does your Medicaid Enterprise solution improve the coordination of care, detect, and prevent fraud, waste, and abuse to support Medicaid program integrity, and improve stakeholder access to state Medicaid Enterprise data?

Our MES solution offers a robust Program Integrity (PI) capability. It functions by identifying fraud, waste, and abuse (FWA) through a statewide surveillance and utilization review subsystem (SURS) reporting process. This capability works in conjunction with the data warehouse to analyze data that's been collected, cleansed, and aggregated regarding claims, providers, and members. For example, our FWA capability includes built-in algorithms designed to calculate and identify anomalies in member and provider utilization. With this information, we calculate a range of program integrity metrics that evaluate per member per month (PMPM).

Question#4.2.40

Describe how your Medicaid Enterprise solution increases access and shared use of data with both the State and other vendors, improves healthcare quality management, and increases automation capabilities.

We've invested in our solutions such that they are transformative for healthcare operations and business processes, shifting the narrative for agencies to focus more on health outcomes versus the primary needs of providing and paying for health services. Below we describe a few of the features within our MES solution that specifically increase access and shared use of data with the State and other vendors.

- **Security and Performance Efficiencies:** All our MES solutions include robust auditing and monitoring frameworks, utilizing industry standard COTS products to aggregate component-level audit data with a correlation engine to provide actionable intelligence and proactive alerting and reporting to identify security anomalies, processing issues, system performance, and overall health of the system.
- **Reduced Risk and Cost Savings:** HealthInteractive is delivered as a fully tested SaaS model with pre-built and validated capabilities using a standard portfolio of software products, tools, and automated test suites. This model reuses significant design, coding, and testing of the platform services that are currently implemented as the framework for multiple MES projects, accelerating project timelines for both initial deployment of the integration architecture and iterations of module onboarding.
- **End-User Configurability and Testing:** We provide several configurable features and frameworks that can be tailored based on both end-user and vendor needs. These configurable aspects of the solution give users more options to align functionality (e.g., content validations or filtering, SSO account management and access approval workflows, reports and dashboards, and alerts/notifications) to meet their business needs. From a testing standpoint, our solution has capabilities that enable users to execute testing using synthetic transactions, facilitating end-to-end workflows without needing to rely solely on module vendors to generate data.
- **Ongoing Technology Refreshes:** Our SaaS solutions are packaged using specific COTS products and we plan for version upgrades and updates periodically to reduce risk. We meticulously track the versions of our product stack and work closely with our vendors to plan the upgrades. This allows our solutions to stay current with the market trends and mitigate risk related to the support available for various COTS product versions.
- **Legacy Integrations:** Another aspect for addressing technical risk management comes in the form of legacy system integrations. The ability to effectively integrate with legacy systems requires flexibility as various options need to be considered. This is a key part of filling the role of the SI within a Medicaid Enterprise. HealthInteractive offers avenues to facilitate integration with legacy vendors to confirm that existing business processes are not disrupted.

- **Implementation of FHIR Standards:** We continue to rapidly evolve the platform, releasing new product features and integration assets at a minimum of semi-annually. Through our latest product release, we have jump-started developing features supporting compliance with recent CMS guidance, including the 21st Century Cures Act interoperability final rule.
- **Technologically Ready Platform**: Preparing for the transition from existing legacy system to the modular environment is important. But equally important is selecting an SI platform that can support healthcare trends such as telehealth and virtual health models will allow you to prepare your MES for future innovations and trends in service delivery.
- **Electronic Data Interchange (EDI):** It is important to look beyond basic EDI use cases and find ways to leverage the solution to cater other value-added services as such as real-time claims adjudication. Response and resolution become more acutely focused on a real-time claims processing environment. Automation related to edit/exception resolution, front end focused editing allowing for real-time correction prior to submission can be embedded into a standalone EDI gateway, and near real-time data made available for accurate claims processing rise to the surface.
- **Focusing on a Customer Centric Model** : As the final rule for interoperability and patient access was released by CMS, one of the key tenants that was evident is to provide a focus on the customer, ease of use and personal access to data. Applying this across the enterprise in planning will not only align to this but will continue to shift the quality of experience for the true customer... members receiving coverage that aligns with their health needs.

Question#4.2.41

If applicable, how does your Medicaid Enterprise solution improve access to end users, such as a user's data or access to additional services?

Deloitte's MES solutions for system integration (HealthInteractive) and data warehousing (HealthMAP) offer multiple capabilities that improve end user access as part of the overall user experience. System capabilities that directly relate to improved end user access and system usability that BMS may consider making part of the MES procurement include the following:

- Providing end users access to a self-service portal for members to view benefits, report changes, and correspond with BMS.
- Implementing a single sign-on capability with multi-factor authentication to protect end users while accessing and exchanging sensitive personal information.
- Integrating real-time reports and automated alerts to inform, remind, and prompt end users to act.

Deloitte brings experience implementing solutions that optimize how end users interact with the MES to obtain information about benefits, report changes of circumstances, and correspond with the agency. We do this by providing end users with options to access necessary medical information as needed without requiring a phone call or in-person assistance. Through a self-service portal, end users can have access to information 24x7 protected by security protocols such as MFA and SSO. Cross-module integration with the MES data warehouse can enable real-time time reporting to fulfill end user requests, download and share forms, and even proactively alert end users of upcoming actions or overdue tasks. Taken together, the MES capabilities we offer improve the overall end user experience by improving access to real-time information in a secure environment, reducing the time end users spend looking for information or following through on agency-requested actions.

Question#4.2.42

How can your Medicaid Enterprise solution help address gaps in health outcomes? Please provide outcomes from other engagements, if applicable.

The process for developing the MES starts with identifying gaps in health outcomes. These gaps can then be analyzed in comparison to separate achievable and observable outcomes that a department wishes to incentivize. This process is best supported by a suite of analytical tools, ranging from simple descriptive statistics to complex analyses using predictive models and what-if scenarios.
Industry standard tools for assessing overarching quality considerations (such as CMS core measures and HEDIS measures) are often a useful starting place. As discussed in other questions, a modern quality measure implementation will also allow a Medicaid department to compare quality measures across demographic cohorts. This allows the department to understand not just the quality of care being delivered as a whole, but also specific differences that may exist between MCOs, racial/ethnic groups, genders, ages, locations, and more.
A strong grouper-based episodes of care implementation is also invaluable. Those with experience analyzing claims data know that a single claim or even a set of claims does not tell a strong story about an individual's overall interaction with the healthcare system. Groupers allow costs to be much more deeply understood across specific medical experiences such as a total knee replacement or a heart attack.
With gaps identified and tools in place, data analysts within the department can begin the hard work of building out a potential model. This process is both an art and a science but is always best supported by strong data analysis tools.
After a model has been designed, it is tested through a pilot on a subset of the Medicaid program. Here the same tools used to develop the model can then be used to assess its success. Analysts will be able to use the data analytics platform to explore outcomes and validate that the changes indented by the model genuinely materialize. Outcomes for participants enrolled in the model may also be compared to participants using more conventional payment structures.
Once a model is deployed at scale, the data platform should be used just as it would to monitor any other aspect of the program. Standard reports should be set up to monitor outcomes and to ensure that any improvements noted during the pilot phase continue to deliver results at scale.
Deloitte as part of its MES solutions has successfully developed analytical models to study avoidable ER (Emergency) visits, Hospital readmissions etc. and use the insights from the model to develop programs to improve health outcomes. Similar models can be deployed to identify gaps in care coordination and transition to improve the health outcomes and reduce the huge cost associated with long term care populations.

Question#4.2.43

Describe your experience with payment milestones during the DDI of your Medicaid Enterprise solution. In other DDI projects, were payments tied to deliverables, acceptance criteria, and/or other DDI milestones?

We have seen other clients preferring the alignment of payment milestones with deliverables and associating them with specified acceptance criteria. These payment milestones are then aligned with project milestones across the SDLC lifecycle throughout the DDI phase. The acceptance criteria for such deliverables are per the mutually agreed content by the state and Deloitte.
Creating and maintaining a cohesive, integrated schedule with payment milestones requires focused effort since each vendor will have its level of complexity and internal processes. Shortly after kickoff with a new module, it's important to define key milestones and deliverables that require coordination with other vendor modules or the Systems Integrator. This allows for the early identification of potential dependencies and areas of potential risk if schedules are not aligned. Defining and confirming these dependencies reduces the potential for conflicts once integration begins and minimizes the potential for finger-pointing when delays occur. As the integrated schedule matures and begins to include more module milestones, weekly meetings across all vendors allow for open dialogue and discussion about the coordination and needs of each vendor. A deliverable can be accepted by BMS and can mark them as complete and compliant based on the format, content, and applicable standards agreed upon with the vendor.

Question#4.2.44

Do you have a short demonstration of your approach and/or Medicaid Enterprise solution that you would like to present to BMS? If so, please describe the method of presentation for the demonstration and suggestions for who should attend. If BMS wishes to take part in a demonstration, they will reach out to the Respondent for further information.

We welcome the opportunity to present to BMS on any of our proven solutions Deloitte has implemented for states that desire the flexibility to customize or extend their MES solutions in the future but don't want to start from a blank slate. Presentation and demonstrations of our capabilities can occur either virtually through a video conference or in person. Though considering recent events regarding the COVID-19 pandemic, we will defer to BMS for guidance when and how these follow up meetings should proceed. We suggest BMS would be interested to learn more about how our HealthInteractive and HealthMAP solutions have supported our MES module implementations as the SI and data warehouse vendor across the country. Descriptions of our MES solutions are below:

- **HealthInteractive™** is Deloitte's market-leading SI platform, built with a service-oriented architecture (SOA) as a cloud-enabled, software-as-a-service (SaaS) solution that is aligned with MITA's Seven Conditions and Standards. HealthInteractive is designed to support modularity and interoperability, allowing states to confidently navigate Medicaid modernization and the transition from or evolution of their legacy MMIS. Additional MES enterprise components including EDI, Managed File Transfer (MFT), Business Rules Engine (BRE), Workflow Engine, and Enterprise Content Management (ECM) provide centralized MES services that are accessible by other module solutions and trading partners. HealthInteractive is equally flexible to integrate with enterprise technology assets, emphasizing reuse, governance, and standards-based data exchange.
- Deloitte's **HealthMAP** solution is a modular and scalable Software as a Service (SaaS) Analytics solution designed to meet the end-to-end enterprise data needs of Medicaid Enterprise Systems (MES). HealthMAP is built on cutting edge tools and cloud technologies designed to meet the ever-growing needs of the various enterprise and Medicaid business functions. The solution aligns with the MITA framework, and subject areas are organized to meet CMS compliance for reporting. HealthMAP offers an out-of-the-box data model covering all required Medicaid subject areas, reporting, and analytic capabilities ranging from traditional reporting and ad hoc analysis to interactive dashboards, GIS, and advanced analytics. During implementation these components are configured using a hybrid agile approach by subject area, affording stakeholders the opportunity to familiarize and use components earlier in the process. We have a standardized approach to the development of ETL, physical data models and semantic models by phases (e.g., Vision & Analysis, Requirement's validation, Design & Configure, Test & Deploy and Certification are different phases through which the solution is configured to State specific needs). As we go through these phases, we create base deliverables and work products which are further enhanced in the subsequent phases. The solution is production-proven, and we are actively implementing HealthMAP in the states of Florida, Nebraska, and Wyoming. Through HealthMAP, we bring experience integrating data across Financial or Core, Provider Enrollment, Eligibility, Third Party Liability (TPL), Prior Authorization, Fraud Waste & Abuse (FWA), and Master Data management modules.

Question#4.2.45

Is there additional information you would like to share with BMS related to the topics addressed in this RFI?

Our experience implementing modular MES SI, and data warehouse solutions have reinforced the importance of using shared services to streamline integration. Procuring multiple vendors can lead to inconsistency and duplicated efforts across the enterprise. Centrally storing and standardizing as much information as possible

through shared services mitigates these risks. The following list provides examples of our core shared services for MES:

- **Number of years of data:** Cleary define the number of years of data that the DSS/DW and each module vendor will be required to convert. Migrating data to the modules and DW is challenging and a consistent well thought out approach is required.
- **Focus on Data Quality:** Technically, data quality falls within the realm of data governance, but based on our experience the agency should consider requiring the data warehouse vendor to implement a robust data quality framework/hub. This provides an ongoing operational focus on data quality.
- **Master Data Management (MDM) for Citizens and Providers:** The ability of the enterprise to improve data integrity and data quality improves significantly by defining a source of truth for these and other data subject areas. Reporting capabilities and enforcement of data governance are also enhanced.
- **Encounter Processing:** The State should clearly define the future state for encounter processing. Specifically, will encounters continue to be submitted to the claims adjudication engine or will there be a separate stand-alone encounter module or will encounters be loaded directly to the data warehouse? Regardless of the approach, our experience highlights the need for a dedicated encounter processing data team to work with the MCOs to continually improve the submission completeness and overall data quality – this is a journey.
- **Module RFP Integration Requirements**: Based on our experience, it's critical to include very clear requirements regarding data exchanges between module vendors and the data warehouse. Many vendors have "standard extracts" which they highlight as their mechanism to share data with the data warehouse, however, our experience confirms that these extracts are usually insufficient to meet the state specific needs and reporting requirements. An overall data sourcing strategy such as requiring a replication of module OLTP system or making it clear that all data must be sent to the data warehouse can prevent confusion. We would also suggest that individual module acceptance be tied a vendor successfully meeting the data warehouse integration requirements.
- **Reference Data Management (RDM)**: Enables modular components to consistently interact with one another for data exchange and transaction processing. These transactions serve as key integration points within the solution and may commonly require the translation of localized coded values between modules or the Operational Data Store (ODS). The RDM translates and maintains shared reference data as sets of permissible values for use in database structures and web services.
- **Workflow/Business Rules Engine (BRE):** Allows central management of business rules and processes for standardization across the MES solution. HealthInteractive™ includes a BRE which consists of three components: Rule Designer, Decision Center, and Decision Server. Our solution utilizes SOA to allow shared access to rules project-wide across modules and participating programs.
- **Data harmonization and Common Business Glossary**: One of the common pitfalls for integration is lack of standardized file exchange formats and business glossary across the enterprise. For quicker and easier integration with Datawarehouse, establishing a standardized file exchange formats per module is highly recommended. The pre-defined formats from the Datawarehouse vendor will help reduce the DDI timelines since the ETL code is prebuilt and readily available for integration. The common business glossary or common language approach gives control to leadership in terms of using common terms across the organization and controlling changes in the future.
- **Redaction processes for translation of data across systems**: An SI platform should leverage the redaction capabilities to align applications and individual modules in tandem for data exchange with Datawarehouse. In our experience, there are certain module vendors who interact using real time webservices. In such cases, the ESB platform should have the capability and require the translation of the real time webservice data into readable formats for Datawarehouse.
- **Additional shared services solutions:** In addition to the core shared services above, our experience has been that states occasionally want to offer additional shared service solutions to their module

vendors. These could include solutions for Document Management, Content Management, and Single Sign On.

If the Department prefers one of these services to be offered to its vendors, Deloitte has experience in providing them as part of the SI or DW role.