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Colorado Department of Health Care Policy and Financing

MMIS Procurement Analysis Report

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Approvals

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1 – Executive Summary

In preparation for its upcoming MMIS procurement, the State of Colorado, Department of Health Care Policy and Financing (the Department) is conducting an assessment of Medicaid Management Information System (MMIS) and Fiscal Agent services procurements in other states. The MMIS market is undergoing significant changes as legacy vendors modernize their application portfolios and new vendors introduce non-traditional systems, approaches, and alliances. Our review of 35 states indicates that there is more activity now than ever before in the MMIS procurement and implementation space. The results of that research, while substantial, do not point to any one approach that stands out from all other options as being the best path to acquire systems and services that can be implemented on-schedule, within budget, and according to requirements and intricate Medicaid business rules. Instead, the research points to significant best practices that can be leveraged within the approach that best fits Colorado's needs.

MMIS solutions have evolved steadily since they were first mandated and funded in the 1970s. In that period, health care Information Technology (IT) systems were primarily proprietary and even MMIS's that conformed to a standard set of defined subsystems had incompatible record layouts and data definitions. During the past four decades, Medicaid data, system processes and architecture, and transaction specifications have been standardized to allow for improved program management and broader health care IT interoperability. Federal legislation and health care practices in the 1980s supported the standardization of medical and institutional procedure coding, revenue codes, pricing schemes, and diagnosis codes from assortments of home grown and locally assigned coding schemes. With the Health Insurance Portability and Accountability Act of 1996 (HIPAA) legislation, most claims processing and encounter processing systems became increasingly compatible in the 1990s through the early 2000s with standardized electronic data interchange transactions, record layouts, and data definitions so that claims could be more easily submitted to multiple payors and the data could be better aggregated and analyzed across plans.

During the last decade, Medicaid Information Technology Architecture (MITA) and similar initiatives continued the shift towards interoperability through open platforms, consistent data and transaction standards, and the ability to adapt to changes. The biggest change for

MMIS occurred with the transition from defined subsystems (specified in the original MMIS general system design) to functional equivalent processes and MITA business areas. Despite the push for better and more standardized systems across all of health care, our research shows that Medicaid systems in particular continue to be highly customized to each state's program with a level of complexity that has led to a high number of delayed implementations and in some cases, outright failures during the procurement or development lifecycle.

The purpose of this report is to provide a snapshot of the current environment for the wide range of MMIS solutions across states. This includes available core claims processing systems as well as supporting systems, service options, operational options, system innovations, best procurement practices, and lessons learned for procurement and implementations.

The report also presents options for the Department to consider for the upcoming MMIS procurement, as well as a final recommendation based on a facilitated alternatives analysis process.

Current MMIS Environment:

The State's current MMIS is over 20 years old, with components that are over 30 years old based on a 1970s general design. Many workarounds and manual processes have been developed to accommodate the antiquated system. This is time-consuming and frustrating for the Department and introduces human error into the process. The current MMIS needs to be replaced. In order to request and receive funding (90% Federal financial participation (FFP)) for the design, development, implementation (DDI), and enhancement of the new MMIS, an Advanced Planning Document (APD) and Request for Proposal (RFP) needs to be developed and submitted to the federal oversight agency (CMS) for review and approval. CMS now requires a State's MITA State Self-Assessment (SS-A) to be attached to new APDs and RFPs.

The contract with the current MMIS and Fiscal Agent vendor ends in June 2015. By regulation, a MMIS procurement period is 8 years total. After 8 years, the services must be competitively bid and purchased. In a fiscal-agent operated state, it is typically covered by a contract that has a 3, 4 or 5-year base contract with the remaining period covered by option years that are exercised annually or in aggregate. With its last procurement, Colorado chose a 3-year base contract and then requested CMS approval to exercise a 5-year option period.

That request was approved July 14, 2010. As a result, the current fiscal agent contract will expire on June 30, 2015. If the Department decides to pursue an additional extension, CMS will have to agree because the Department has already exercised all available option extensions. The Department contracted with Public Knowledge in September 2011 to complete Colorado's MITA SS-A and to develop an RFP to procure its MMIS and supporting fiscal agent services, as well as a DSS and related reporting activities through a competitive procurement process. Prior to starting the RFP and requirements gathering phase of the project, the procurement strategy needs to be determined in order to guide the structure of the RFP, scope of services, and resulting contract.

The following observations from our state research, highlights the evolving MMIS environment in the face of federal health care reform, MITA maturity progression and technological advances to support MMIS solutions:

"21 of the last 21 MMIS implementation projects over the past 10 years have been late, over budget, failed, or some combination thereof."

- More than one-third of the thirty-five states researched have recently implemented a new MMIS solution.
- Almost half of the thirty-five states researched are currently undergoing procurements or are in the DDI Phase of a new MMIS.
- Three of the seven states we identified undergoing a procurement or recent procurement resulted in cancelled projects.
- Five of the ten states we identified as currently in the DDI phase have experienced significant delays. Six of those states are implementing a system that has not been CMS certified previously.
- At least three of the MMIS's prevalent in the current environment have not been CMS certified yet.
- Twenty-six states have chosen to implement their Decision Support System (DSS) separately from the MMIS.

Table 1 on the following page contains a summary of MMIS status by state.

Table 1 – Definitions and Statistics

**** Indicates a cancelled project***
***** Indicates a cancelled or delayed implementation***
****** Indicates a recent procurement, but for takeover services only (with limited/no MMIS system enhancements)***

MMIS Status	Status Definition	Number of States	States
Legacy System	The identified state(s) has a MMIS that was implemented more than 5 years ago. Most legacy systems have some degree of web functionality and/or Commercial Off-The-Shelf (COTS) integration via system enhancements that have occurred within the past 5-10 years.	7	AZ, HI, KS (with major upgrades), NM (currently have RFP out for new Fiscal Agent services contract, but are not replacing MMIS), NV ***, RI, WY***
Modern System	The identified state(s) has a 'modern' MMIS that was implemented within the past 5 years.	12	AL, CT, FL, ID, ME, MA, MI, OH, OK, OR, WA, WI
Procurement	The identified state(s) is currently in the procurement process (RFP planning, development or evaluation) or planning activities for an upcoming procurement. This also includes states that have recently cancelled the procurement(s) at any point in the process.	7	NJ, SC, UT, AR*, NE *, NY *, WV *
Design, Development and Implementation (DDI)	The identified state(s) is currently in the DDI phase for a new MMIS. This includes states that have recently awarded a contract, but may not have officially started DDI. This status also included states with DDI delays, sometimes with delays greater than 12 to 18 months.	9	CA, LA, MD, IA, NC, AK **, NH **, ND **, SD **

Note: The table above includes information from states that were included within the scope of our research (35 total), and is not an indication of overall status across the United States.

Vendor Innovations:

The following bullets highlight innovations identified through the vendor research and demonstrations:

- Vendors are marketing new web-based, service oriented architecture application suites, replacing their current legacy developed systems. Not all of the new systems are proven or certified, which increases risk but also provides opportunities for new features and efficiencies.
- The trend towards component-based development helps to promote a shift away from "big bang" implementations as component-based development subdivides a system into smaller parts. Building on modular development is a move towards plug-and-play systems; in other words, independent systems can be introduced into the environment. The system may appear to be solely an MMIS, but various independent components serve as the MMIS, which eases replacement or enhancements.
- States are demanding more transparency in the business rules contained in the MMIS, and vendors are responding with rules engines for Medicaid that have the potential to span multiple programs. For instance, Medicaid benefit plan rules should be modifiable without significant programming hours. Some vendors demonstrated rules-writing capabilities in almost plain language through a simple text format.
- Vendors are also promoting cloud-based systems, in which the system's technology is maintained and operated via the Internet. Features in the cloud include Provider Portals, Member Portals, and Staff Portals.
- Vendors described how common system processes and services can be used across the Medicaid Enterprise to provide better support to multiple business processes. This can be supported by translating business and system requirements so that they align with MITA business functions.
- Development of enterprise views for reporting and performance measurements. In addition, users, providers, and even members may have access to customizable dashboards.

- Workflow functionality gives end-users the ability to manage business processes across functions and programs. By using automated workflows, workloads can be leveled across fiscal agent staff.
- Enterprise views for reporting and performance measurements. In addition, users, providers, and even members may have access to customizable dashboards.
- Workflow functionality gives end-users the ability to manage business processes across functions and programs.

State Innovations:

The list below highlights innovations identified through independent state research and state leadership interviews by innovation areas.

Enterprise systems

- In North Carolina, the state is working on a single enterprise application called NCTracks that will use web services to serve five different health and human services programs with a single portal on the front end. CSC was selected as the vendor for DDI. The new system is expected to provide enhanced reporting and analytics compared to the state's legacy system. According to various state contacts, CMS regional contacts recommended approval of the approach as it was developed based on CMS certification requirements and MITA.

State Innovations

- Enterprise systems, including data warehouses
- Interoperability and Integration
- System and Service Carve out
- State collaboration for same vendor implementations
- Web-based system implementations

- New Jersey's Public Health and Human Services Programs shares a common data warehouse for Medicaid, TANF, Child Care Assistance, Food Stamps, Addictive Services, Mental Health, and other General Assistance. Data from the agencies' human services is pooled to provide more comprehensive management of service offerings and decision-making across programs.
- Michigan used a phased approach to implementation for its enterprise data warehouse. Phase 1 focused on Medicaid fraud and abuse, integrated claims, and policy support.

Phase 2 encompassed managed care data, and Medicaid eligibility table data. Phase 3 had an enterprise focus including other program data, such as TANF, SNAP, and Foster Care. There are currently more than 9,000 users of the data warehouse.

Procurement and Contract Strategy

- After a cancelled procurement, the state of Arkansas recently released their strategy for the 2012 MMIS procurement. As part of the procurement strategy, they presented plans for the release of three RFPs: 1) core system components and services; 2) pharmacy system and services; and 3) a data warehouse with an emphasis on outcomes (meeting federal certification requirements). The core system will be implemented in two phases. Phase 1 will consist of functionality that meets current processing capabilities and federal certification requirements. Phase 2 will meet CMS future processing capabilities. Phase 1 must be completed within 36 months and Phase 2 implemented 12 months later. In addition, the contractor can earn a payment incentive for early implementation.
- The State of Iowa released several RFPs in relation to their recent MMIS re-procurement. Vendors had an opportunity to bid on the Medicaid Management Information System (MMIS) and related operations, a Pharmacy Point-of-Sale (POS) system and related operations, and an Integrated Eligibility system to meet all federal and state requirements and CMS certification. A primary vendor could partner with a subcontractor to achieve a full set of *services* for each of the scopes of work. Accenture was selected for the primary MMIS contract. Accenture's web-based platform has not implemented in any state to-date and appears to be more of a service-based approach to MMIS functionality.
- The state of Nevada released an RFP in 2010 for a takeover of its exiting MMIS while requiring bidders to provide a budget neutral bid for operations. Despite the cap on additional costs, Nevada received three proposals and contracted with a vendor for the takeover with zero cost for the system transition. Additional costs were only incurred for new functionality that was requested by the state.

Interoperability and Integration

- Oklahoma implemented a web-based Medicaid enrollment system that has a high degree of interoperability with their MMIS. The eligibility system and MMIS are both

administered and managed by the same agency. Oklahoma made the decision to remove Medicaid eligibility for the SoonerCare (Medicaid) program from the larger health and human services eligibility system. As a result, Medicaid eligibility and the MMIS are tightly integrated.

- Several other states are considering implementing an integrated eligibility system with the core MMIS.

Cost:

Below are approximate costs for planning, DDI, enhancements of core MMIS and additional components (not including DSS, ad hoc reporting systems and other non-core functionality), and project management costs for contracts that average 5 to 6 years:

- Planning — $1 million to $3 million
- DDI — $50 million to $100 million
- Enhancements, maintenance and fiscal agent operations — $50 million to $150 million over the life of the contract. This amount varies greatly based on client volume and Medicaid size.
- Independent Verification and Validation — $2 million to $4 million
- Project Management Offices (contractor or state-run) — $400,000 to $600,000

Operational costs are also increasing and correlate with the overall size of the Medicaid program and the volume of transactions to be processed. Some costs incurred by vendors may be amortized across operations rather than built into the implementation price, especially if the RFP is structured to weigh the implementation costs more than the operational costs. Costs incurred by vendors responding to MMIS RFPs and costs associated with accountability for implementation delays increase the overall project risk and costs for states and vendors alike.

The current funding rules as specified in the Code of Federal Regulations (CFR) and described in the State Medicaid Manual are most favorable to acquiring a traditional MMIS. However, informal discussions with CMS at the regional level, seems to indicate that new approaches, if shown to be more efficient in terms of schedule and cost, might be considered.

1.1 – Project Vision and Guiding Principles for MMIS Procurement Research and Analysis

The Department's leadership team participated in a facilitated visioning session on November 30, 2011 where they developed a common "vision" for the MMIS and service delivery model. The resulting vision for the project is documented in Figure 1 on the following page. In addition, Public Knowledge conducted several interviews to identify Department priorities, which are described in the project guiding principles listed on page 11 of this report. The vision will be used, in conjunction with the guiding principles, to review and rank the MMIS procurement options available to the Department. The official name for this project is COMMIT (**CO**lorado **M**edicaid **M**anagement **I**nnovation and **T**ransformation Project).

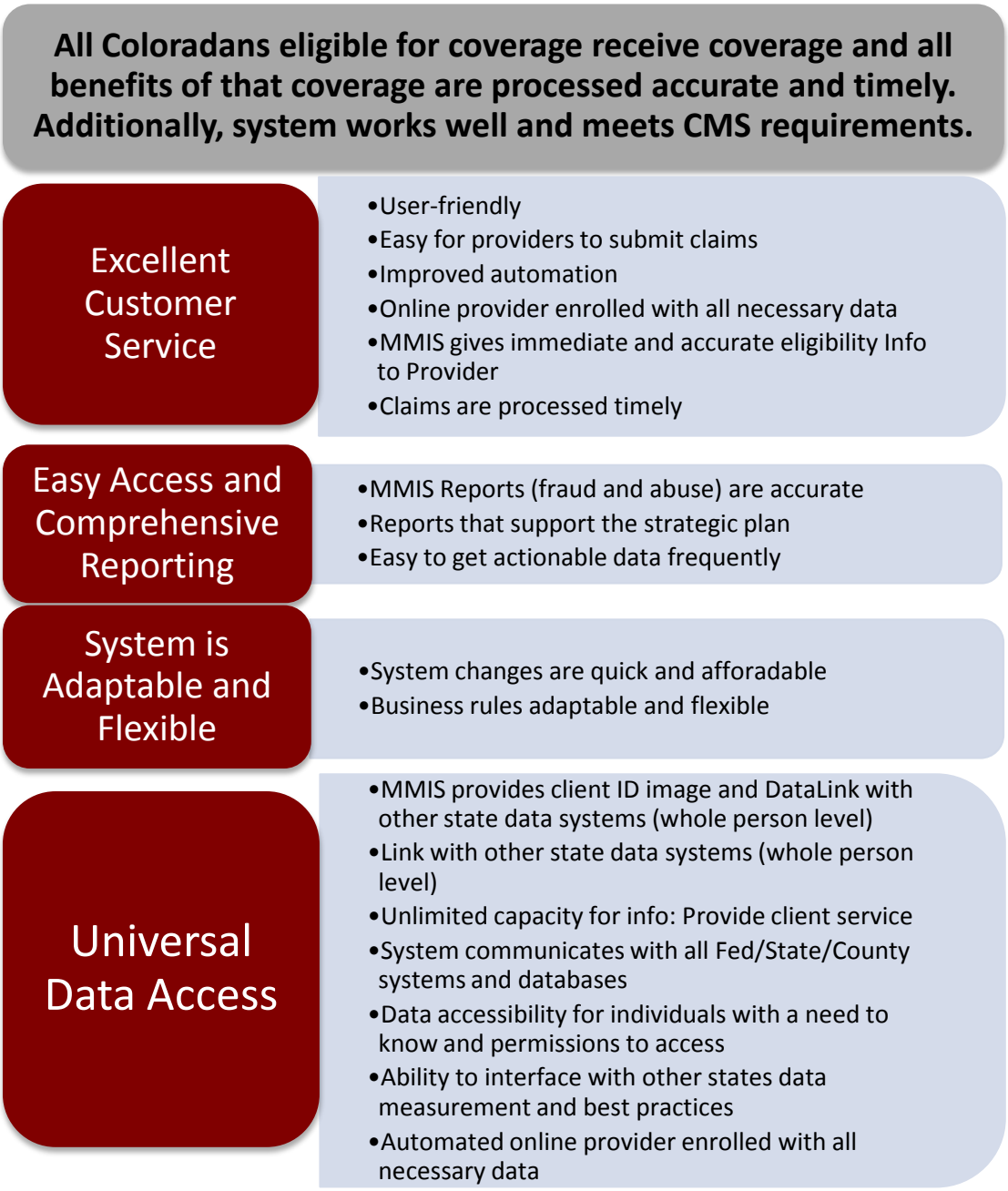

Figure 1 – COMMIT Project Vision

Guiding principles were also developed for the Project as a result of interviewing leaders at the Department to determine priorities for selecting an MMIS. They include:

1. Make the most of this opportunity to implement modern[1] functionality and technology that results in increased and proactive management, staff efficiency, and enhanced decision-making.
2. Implement a business intelligence solution that includes a modern, industry-standard Decision Support System (DSS), which will enable accurate, real-time data and reporting, business performance management, benchmarking, and predictive analytics in order to meet the changing business and management needs for information.
3. Structure the procurement so that it focuses on the delivery of services rather than the system (the system will be the tool that supports the services) and provides for an enhanced customer service experience for providers and clients.
4. Implement a contract management structure that makes the Department less dependent on one vendor and is incentive based for performance.
5. Implement a solution that provides an easy to access and comprehensive "one stop shop" for providers and maximizes the capability for information sharing.
6. Structure the schedule of events to ensure a quality procurement and a successful implementation of the contracted services and supporting technology (for example, adequate response time for proposers, realistic DDI schedule, organizational readiness activities, and adequate time for thorough testing).

The vision and guiding principles will be used by the project to direct the decision-making process.

[1] We are using modern in this context to mean flexible, rules-based, configurable, modular, expandable, but essentially to provide a satisfactory user experience in the navigation of the system, maintenance of policy rules in the system, and overall timeliness of changes to the system.

1.2 – MMIS Options and Procurement Research and Alternative Analysis Approach

This section contains a brief overview of the research and alternative analysis methodology. The comprehensive approach for the research can be found in Section 2 and the comprehensive approach for the alternatives analysis can be found in Section 5.

Multi-faceted Research and Analysis Approach

1. Independent Research
2. Data analysis and Synthesis
3. Conclusions and Options
4. Alternative Analysis Process
5. Recommendation for input to procurement processes

Our MMIS procurement research approach was designed to include various sources of information. One of the primary sources was direct contact with 25 states via phone, email or in-person meetings. States were selected based on recent or ongoing procurements, recent implementations of modern MMIS solutions, or states that are currently undergoing DDI of an MMIS. Based on the complexities of the current state of the MMIS environment and changes resulting from federal health care reform, our MMIS procurement research approach was designed to include various sources of information. Our state analysis is based on information received through direct contact from 50% of the states. In addition, we supplemented the information gathered directly with independent research for an additional 10 states. Our approach also included third-party literature review, CMS and Colorado project stakeholder interviews, and vendor demonstrations. Our research approach is described in detail in section 2.2.

Procurement Options:

Four preliminary options have been defined and discussed with the Department. These options are quite broad and should be viewed as "super-sets" of alternatives; that is, there may be several sub-options worth considering. The Department should consider writing the RFP based on outcomes that allow for flexibility associated with options. Once the Department settles on a direction according to one or more of these options, we can develop the sub-options and complete the alternatives analysis.

1. **Acquire a MMIS**: This option entails acquiring a transfer MMIS and modifying it for use in Colorado. Colorado has experience with this type of procurement in the past and it is probably the most straightforward option in terms of clearly established funding and

contracting approaches. It is also fraught with delays, unrealized expectations, and in some cases, outright failure during the development stages. The main consideration for this option includes the degree of customization that is required or desired by the Department. In general, the more customized the system the less flexible it is for future changes. The current Colorado MMIS is an example of a highly customized MMIS. The other main consideration is the degree to which COTS products will be incorporated into the MMIS. Most modern MMIS's incorporate COTS products to some degree. Some claim to be primarily built with integrated COTS products while others use a more traditional MMIS core surrounded by selected COTS products. On the more innovative side of this option are component-based applications for various functions such as provider and client portals, and claims rules engines that make up the "MMIS foundation." Component-based systems not only support the integration of COTS products, but are modular in design to support re-usable custom-developed software.

2A. Broker claims processing and administrator services through competitive procurement process: This option entails contracting vendor services for various claim types. For example, pharmacy claims, dental claims, medical claims, and institutional claims could all be brokered out to one or multiple entities that currently process those claims in a commercial environment. Since the vendor would be taking on the full service set for claims processing, acquiring and modifying a core MMIS may not be necessary. For program management and reporting purposes, processed claims data would be integrated into a new data warehouse, including various business intelligence functions for data management, reporting, and potential enterprise decision-making. The main consideration for this option would be the Department's tolerance for modifying current policies, business rules and organizational structure to find a better fit within a commercial processing environment. Another primary consideration is the amount of planning and negotiating needed to fit federal funding rules to this approach. Both areas would require more up-front planning time as part of the procurement, but that time may result in a shortened implementation for this and future Medicaid claims processing contracts. In addition, unique program specific needs may not be supported through baseline system and may require increased configurability (i.e. Long Term Care, etc.).

2B. Broker claims processing and administrator services through existing Department relationship (e.g., Colorado Access and Rocky Mountain Health Plan): This option is very similar to option 2A, but would potentially eliminate the lengthy procurement process associated with traditional MMIS procurements by contracting directly with an existing partner. However, the direct contracting approach may need further assessment of impacts to state procurement laws. This option may also provide the Department the ability to leverage funds already incurred towards their partners' existing infrastructures. In addition to the primary considerations associated with option 2A, the Department would also need to consider the potential impacts and/or supplemental contracts that may be required if the vendor cannot support the required administrative functions.

3. Participate in a multi-state consortium for MMIS: Working with other states, Colorado could either lead or participate in a consortium to develop a multi-state MMIS. Such an approach would most likely be deemed acceptable by CMS, and CMS is even willing to facilitate planning efforts. While the technical aspects of developing a multi-state system are fairly straight-forward, the complexity and the number of decision points involved in negotiating a contract for two or more states could prove extremely challenging. This option would require the most up-front planning of any of the options being considered. The up-front planning time could be shortened if Colorado could identify a state that would be a good fit both demographically and programmatically that has either recently implemented or is in the process of implementing a MMIS. Depending on how this option is framed, it may require the most work and extensive negotiating to conform to state and federal purchasing rules. Some states have pursued an in-state version of this option in the past; constructing a MMIS capable of processing claims for other in-state programs and benefits.

Potential Advantages and Disadvantages for each of the options are highlighted Table 2:

Table 2 – Potential Advantages and Disadvantages for Identified MMIS Options

Option	Potential Advantages	Potential Disadvantages
Option 1 Acquire a MMIS	• Current familiarity with MMIS functions and processing approach • MMIS vendor and system availability in marketplace • Able to leverage fiscal agent services • Can incorporate an acquisition strategy that allows for separate contracts for MMIS, DSS, other operational services • Flexibility in hosting options (State or vendor) • Option to select a previously certified MMIS (CMS approved based on use of the Medicaid Enterprise Certification Toolkit-MECT) • Less uncertainty about software ownership rights than with other options • CMS 90/10 Funding	• Cost of developing and implementing a new MMIS • Long implementation timeframe of 36 months or more (based on other states' projects) • Vendor costs associated with new system risk (shift to operational costs) • Future changes likely to be costly and time-intensive due to the highly customized approach
Option 2A Broker claims processing and administrator services through competitive procurement process	• Vendors have agreed to take on financial risks associated with implementation • Able to leverage fiscal agent services • Provides opportunities to upgrade/enhance components and services more often • Implementation timeline may be shorter than that of traditional MMIS • Modernize claims processes without need for high-risk MMIS implementation • Potential to cut FFS program and infrastructure costs • System as a service alleviates burden on State staff to manage additional workload for some aspects of claims processing • Manage data on back end through business intelligence functionality • Not tied to system architecture but could meet various aspects of MITA	• Uncertain CMS buy-in on approach • Approach is unproven for all claim types found in an MMIS (fee-for-service) • Scope of risks is unknown • Will require some modification to existing business processes • Unique program specific needs may not be supported through baseline system and may require increased configurability (i.e. Long Term Care, etc.) • May not be eligible for enhanced match funding from CMS • State staff may not buy-in due to impact on roles and responsibilities • Political acceptance and achievability are uncertain • Time for business mapping could be extensive and is unknown at this point in time

Option	Potential Advantages	Potential Disadvantages
Option 2B Broker claims processing and administrator services through existing Department relationship (i.e. Colorado Access or Rocky Mountain Health Plan)	• May not have to go through lengthy procurement process • May provide ability to leverage funds already incurred towards existing infrastructure • Implementation timeline may be shorter than that of traditional MMIS • Provides opportunities to upgrade/enhance components and services more often • Modernize claims processes without need for high-risk MMIS implementation • Potential to cut FFS program and infrastructure costs • System as a service alleviates burden on State staff to manage additional workload for some aspects of claims processing • Manage data on back end through business intelligence functionality • Not tied to system architecture but could meet various aspects of MITA	• May not be able to support administrative functions • May need further assessment of impacts to state procurement laws for direct contracting process • Uncertain CMS buy-in on approach • Approach is unproven for all claim types found in an MMIS (fee-for-service) • Scope of risks is unknown • Will require some modification to existing business processes • State staff may not buy-in due to impact on roles and responsibilities • Political acceptance and achievability are uncertain • Time for business mapping could be extensive and is unknown at this point in time • May not be eligible for enhanced match funding from CMS
Option 3 Participate in Multi-state consortium for MMIS	• RFP could be setup to partner with other states in the future (WY, NM) • Could be utilized with other options • Able to leverage fiscal agent services • CMS willing to facilitate multi-state MMIS • Cost of core system updates shared • Supplemental federal funding for system improvements and enhancements • Leading the procurement would provide greater control over procurement selection and implementation processes • Future technology changes would be shared by all states • Multiple states provide input on new initiatives and tools, providing better solutions and Federal alignment	• Lack of 'accountability' and contract 'remedies' since it is an inter-state agreement • May require state legislation changes to enter into an agreement • HI/AZ is the only current MMIS model • Process of mapping business rules for each state could be complex • Would require a detailed cost accounting process to ensure each state and various State and Federal oversight entities have access to cost information borne by each state and to track the federal share • Infrastructure is more complex (configuration management, project management, cost tracking) • Additional privacy considerations for multiple state access

Option 1 has many working examples, but Options 2A and 2B have not been fully proven for a fee-for-service environment in the public sector. However, this model does have some precedence in pharmacy claims processing and enrollment processing for managed care programs.

As part of our research we found willing vendors, including non-for-profit payors, who have expressed interest in entering the domain of managed fee-for-service and some even suggested taking on additional risk for implementation since the approach is not established for the MMIS market. Private sector payors claim to be able to implement claims processing and supporting functionality in less than a year, but the average implementation is between 12 to 18 months. Colorado Access recently selected Trizetto's QNet product and has plans to implement the system in 12 months. This is the same product offered to the MMIS market through Molina Medicaid Solutions. Trizetto is headquartered in Colorado.

Option 3 does not have many working examples in the MMIS space, but there are other health and human services system implementations that demonstrate the viability of state collaboration, including Women, Infant, & Children (WIC) Consortiums (Colorado is a member of a multi-state consortium). The shared MMIS between Hawaii and Arizona is the only current example of a truly shared MMIS. However, many states implementing the same baseline MMIS have demonstrated some collaborative work for selected enhancements and legislative initiatives.

Alternatives Analysis Overview:

Our proposed approach to facilitating the MMIS alternatives analysis is to evaluate the MMIS options at a high-level, based on pre-defined considerations, and using specified evaluation criteria. Each alternative will be evaluated and scored against the same considerations and criteria. These results will guide the Department in selecting the option that best meets its priorities. The strategy for the procurement approach will ultimately be derived from the chosen MMIS alternative. Based on input from project leadership and the Project Guiding Principles, we have defined four viable alternatives. Options 2A and 2B, and Option 3 will require extended planning and negotiations with CMS, if pursued. In addition, those options carry more risk without strong support from the agency. However, they could produce

significant savings and potentially quicker implementations. Figure 2 illustrates an overview of the alternatives, considerations, and evaluation criteria to be used for evaluating the alternatives. Additional details regarding the end-to-end process for evaluating alternatives can be found in Section 5 of this report.

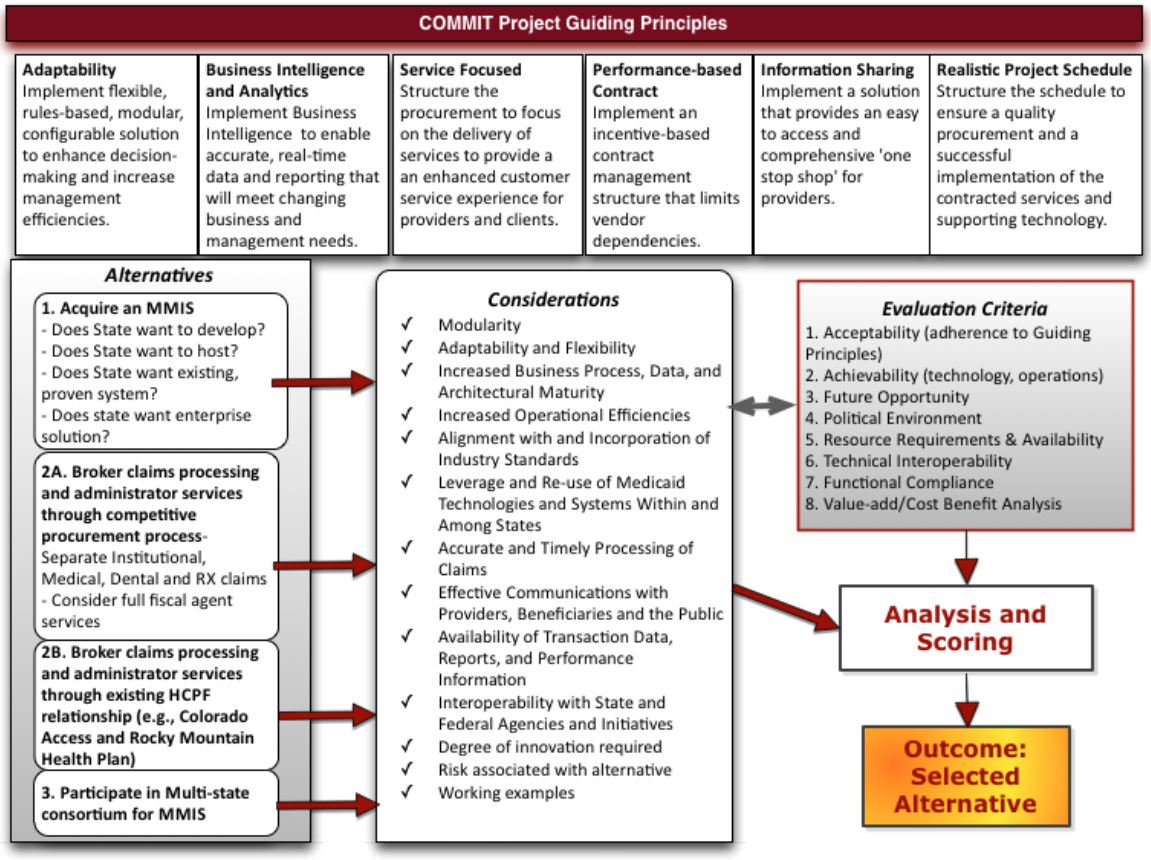

Figure 2 – Alternatives Analysis Overview

We propose the high-level process included in Table 3 on the following page to identify and evaluate alternatives for the Colorado MMIS procurement.

Table 3 – Process for identifying and evaluating alternatives

Define Guiding Principles	Public Knowledge interviewed project stakeholders, including key executives and various Department staff to define guiding principles for the project. We also used information from both the Project Kick-off Meeting and the Visioning Session. These guiding principles have been validated and approved by the Project Executive leaders.
Identify Alternatives for Consideration	Public Knowledge identified four alternatives for the procurement. The alternatives are based on industry trends, the analysis of actions by other states who are undergoing procurement or who have recently implemented a MMIS solution, and input from Project Leadership. We did not present some of the more traditional options due to low viability and misalignment with the Project Guiding Principles.
Define and Document Considerations for Analysis	Public Knowledge identified considerations for evaluation of each alternative. Considerations were derived from guiding principles, as well as the CMS Seven Standards and Conditions for Enhanced Funding. Each alternative will be evaluated against these considerations.
Define and Develop Evaluation Criteria	Public Knowledge developed proposed evaluation criteria using the guiding principles and best practices from similar projects, procurement research, and input from other states. The criteria should be validated by the Department, and can potentially be weighted according to priorities. Each alternative will be evaluated against these criteria.
Conduct Facilitated Alternatives Analysis Discussion	Public Knowledge will facilitate a discussion of the alternatives analysis approach and evaluation. Each viable alternative will be broken down into more detail regarding specific strategy, pros, cons and cost information where possible.
Complete alternatives analysis	Public Knowledge will document the recommended approach, based on the consensus from the facilitated alternatives analysis discussion and include it in the final Research and Recommendations Report.

In working through the options, the overriding consideration for the Department will be timing. First, the selected option has to fit the *procurement* timeframe that the Department has to work with based on state budget commitments and the amount of planning that is achievable between now and when the RFP must be released to bidders. Second, the selected option has to meet the Department's anticipated needs as they are known now and at least through the next MMIS *contracting lifecycle,* which will be approximately eight to ten years. Third, the option has to fit the current *administrative and political* environment; that is, is now the right time to pursue the selected option?

1.3 – Alignment between Re-procurement Analysis and MITA Road Map

The MITA Road Map identifies goals and the path that the Department would like to take in order to move the organization from its current business capability level to an improved level of business maturity. Information gathered through the MMIS research, in conjunction with the MITA Roadmap provide a listing of critical functionality for the new MMIS. This functionality will improve the way the MMIS supports the Department's health care programs, including Medicaid, CHP+, Managed Care, and Long-Term Care. Components that should be considered in procurement of the new MMIS include a workflow management application, enhanced web portal, and a configurable MMIS. Key enhancements based on the MITA To-Be planning are highlighted below and described in subsequent sections of this report:

- Enhance CMBS interface capabilities
- Enhance Web Portal Features and provide Single Sign-On functionality for authorized users of the system
- Centralize access to information including LTC Prior Authorizations, Screenings, and Claims into MMIS or DSS
- Enhance Medicaid payment processing through MMIS to reduce current manual workarounds where possible
- Implement a Data Warehouse that provides Business Intelligence tools with enhanced analytics capabilities to support the Department's reporting and decision-making needs

1.4 – Recommendations for MMIS Procurement

As a set of preliminary recommendations, Public Knowledge has identified the following best practices from the MMIS research.

The Department should proceed with acquiring an MMIS, which is the option that received the highest score by stakeholders during the alternative analysis process, but the Department should encourage innovative responses from vendors by using an objectives-based procurement, focusing on objectives, outcomes, CMS certification (funding) criteria, and

performance measurements. This is in contrast to strategies and requirements that focus too much on technical architecture or system specifications. For example, some states have followed a path of making a specific requirement that the MMIS be "web-based" or utilize "cloud computing" and not focusing on ultimately the outcomes. This can result in rigid system design. In the 1990s several states insisted on "client-server" architecture because it was considered state of the art. In reality, the states that made it through to development discovered that such an architecture was much more complex and expensive to maintain and modify than originally thought.

By focusing on an objectives-based approach, vendors will be free to propose innovative solutions for a suite of applications, or components, to serve as a "best of breed" MMIS. If there are specific Colorado requirements that do not have flexibility in terms of process and/or implementation, this can be stated in the RFP. For outcomes that are not specific, allow vendors some freedom for creativity in terms of the proposed system, services, and implementation approach and suggested timeline (within certain parameters). Although this approach offers more creativity and often results in a wider variation of market solutions, objectives-based RFPs are more difficult to develop and evaluate. Therefore, the scoring methodology needs to be considered in advance. While the Department may look to obtain a "best of breed" system, the Department should also be cautious about the number of contracts that can be effectively managed. Regardless of the chosen MMIS option, we would suggest considering the following recommendations in support of the MMIS procurement:

- **Separate the bid elements for the core MMIS functions, fiscal agent services, and Electronic Data Interchange (EDI).** Using the objectives-based procurement approach, the Department should consider having three bid elements for core claims processing functionality, fiscal agent services, and EDI within a single RFP. The Department could consider having vendors bid on one, two, or all three elements. This would allow vendors the flexibility to capitalize on their strengths, while minimizing the risk of limiting competition and vendor interest that would be associated with separate RFPs for the core MMIS and Fiscal Agent services. Implementation timeframes will vary, depending on the selected MMIS option, but will most likely require at least 36 months. Some states have been able to implement in less than 36 months, but not without major processing workarounds. During the demonstrations, it was apparent that

some vendors have new systems to offer but do not have the fiscal agent experience for business operations. Private payors claim to be able to implement a new program into a commercial claims processing system in about 12 – 18 months, which is described in Options 2A and 2B as brokering claims processing services instead of acquiring a traditional MMIS claims processing system. Such an approach would likely require extensive business rules changes on the frontend in order to meet the 12 – 18 month schedule.

- **Separate the bid elements for Business Intelligence.** The Department should also consider delineating the procurement process for Business Intelligence solutions from the core MMIS components. Business Intelligence includes data warehouse and decision support system functionality, as well as predictive analytics. A comprehensive analytics tool will provide the Department an ability to make enterprise decisions, as well as manage patient outcomes. These solutions have been proven to have shorter implementation timeframes (12 – 24 months), depending on the scope, and may cost anywhere from $10 to $50 million, including operations costs across multiple years. Additionally, the Department should consider an enterprise business intelligence solution, which could help fold in other Medicaid and program data typically not found in an MMIS to support enterprise decision-making. An enterprise approach will prove to be somewhat longer to implement and will fall on the higher end of the cost spectrum. The Department could also consider including the Statewide Data Analytics Contractor (SDAC) system scope of work within the Business Intelligence RFP to provide more comprehensive data as part of the business intelligence tools for analysis and decision-making. Additional information on functionality of the SDAC and supporting information for folding this into the RFP can be found in Section 4 of this report. Many recent procurements have separated out this functionality from MMIS procurements due to the condensed implementation timeframes and increased likelihood of successful implementation. In addition, many vendors have developed proven enterprise solutions to support Medicaid and other health and human services programs. If the Department considers an enterprise approach, it should be completed in increments, starting integration to the current MMIS within about one year.

- **Implement Pharmacy Benefit Management (PBM) system and supporting services on its own schedule.** Implementation of a Pharmacy Benefit Management system to process pharmacy claims is another example of a system that is usually implemented in less time than a traditional MMIS and can help foster an environment of successful implementations. Functionality would include point of sale, pharmacy benefits management and Medicaid pharmacy services. Pharmacy services should include Preferred Drug List (PDL) and Supplemental Rebate Program functionality, and could be conducted within approximately 6 – 12 months of completing requirements. If the Department contracts directly with a pharmacy vendor, whether they implement early or not, they are more likely to save money. If a MMIS vendor subcontracts with a separate pharmacy vendor, the Department will likely pay more for the system and implementation because the MMIS vendor may add a profit margin in addition to what the pharmacy vendor charges. The Department should also consider implementing the components for provider enrollment and verification very early in the schedule. This could be implemented on the same schedule as pharmacy systems.

- **Structure the implementation timeline to include a 6 – 8 month planning phase after the contract award.** This phase would include a comprehensive review of Colorado Medicaid payment and business processes with a recommendation on how the Department could streamline or simplify the processes to reduce DDI costs. This may allow for cost savings, but the Department should consider training staff to conduct business process review and redesign efforts or utilizing an independent vendor experienced in business process redesign to ensure process changes best reflect the needs of the state and not the DDI Contractor.

- **Increase Department staff to support implementation planning.** The Department must start considering resources for the following tasks: engaging in DDI and business redesign efforts, conducting outreach and collaborating with stakeholders, managing the contractors, and establishing governance for implementation. Currently, the Department does not have sufficient staff to successfully perform these activities. Additional resources will be required to successfully support the procurement after release of the RFP and implementation planning efforts.

- **Publicly release a Procurement Strategy prior to the RFP:** This could be done in two phases. The first phase would include several procurement strategy options for vendor feedback and response. As a result of vendor community input, the Department may update the strategy, and phase two would include a public release of the final procurement strategy.
- **Release a draft RFP for public comment:** The Department may consider releasing a draft RFP for public comment prior to releasing the formal RFP to help establish vendor buy-in on the procurement, and consequently, increase the number of vendor responses.

2 – Research and Analysis

This section contains a summary of our approach for conducting the MMIS research and analysis, a snapshot of the MMIS environment across states, procurement and implementation strategies, and procurement best practices. This section also describes the current MMIS vendor marketplace and new entries into the market for MMIS' and other supporting systems. This information was gathered through a broad range of research, including interviews with state leaders, interviews with CMS, and other independent research.

In summary, many states are currently shifting away from traditional MMIS mainframe environments and proprietary architectures. Such mainframe-based systems offer limited abilities for interoperability with other health care systems, and limited abilities for interfacing with other systems. For example, Colorado MMIS users currently access the system through a Windows-based client. In addition, enhancements and fixes to the MMIS are costly due to programming needs within a mainframe environment.

"…vendors are marketing new web-based, service oriented architecture application suites, replacing their current legacy developed systems. Not all of the new systems are proven or certified, which increases risk exposure for states looking to be innovative in a rapidly changing MMIS environment"

Realizing the demand for more modern architectures, current vendors are marketing new "web-based," service oriented architecture application suites including core claims processing systems, replacing their current legacy developed systems. Not all of these new systems are proven or certified, which introduces a level of risk to states looking to be innovative in a rapidly changing MMIS environment. In addition, some commercial health claim payors and other vendors are seeking to establish acceptance of full operation and management of claims processing and other fiscal agent services without a traditional MMIS.

Given the extensive research output that is described in this section, Figure 3 on the following page summarizes where to find our methodology and analysis ("results") associated with the MMIS and procurement research.

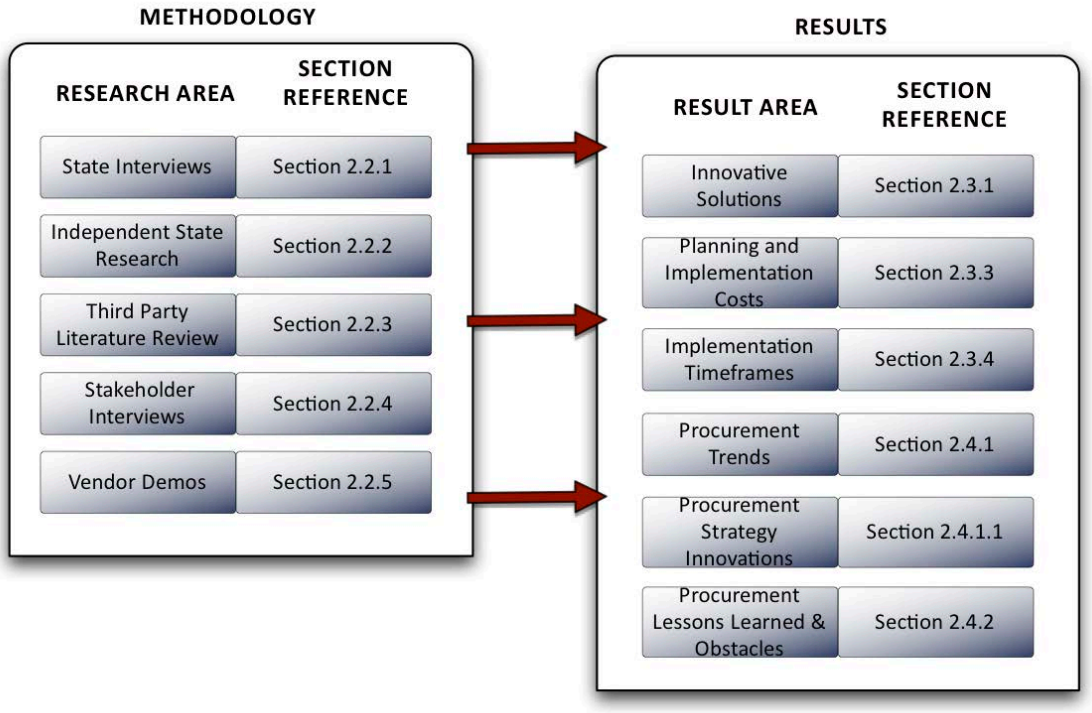

Figure 3 – Research Methodology and Results Section Mapping

2.1 – Findings At-a-Glance

Many states are looking to implement modular, configurable systems in response to federal expectations, MITA, and a general evolution in the payor industry. Consequently, states are shifting away from mainframe systems and "big-bang" implementations. In response to this demand, vendors are marketing new solutions based on open architectures and platforms such as C#/.NET, smart clients, web services layer, and Java Platform Enterprise Edition (Java EE). Application portfolios and services are being offered through new vendor alliances. However, new technologies, intricacies of Medicaid programs, lengthy and complex state procurement processes, and evolving initiatives pose substantial risks to successful procurements and implementations.

Many states are currently undergoing MMIS procurements and implementations; this makes establishing best practices for procurement and implementation of innovative solutions particularly challenging, as approaches are unproven. That is, they have not

led to successful implementations and certifications to-date. This is supported by the following analysis as a result of state research:

- More than one-third of the thirty-five states researched have recently implemented a new MMIS solution.
- Almost half of the thirty-five states researched are currently undergoing procurements or are in the Development, Design and Implementation (DDI) Phase.
- Three of the seven of the states we identified undergoing a procurement or recent procurement resulted in cancelled projects.
- Five of the ten states we identified as currently in the DDI process have experienced significant delays. Six of those states are implementing a system that has not been CMS certified previously.
- Three of the MMIS's prevalent in the current environment have not been certified by CMS.
- Twenty-six states addressed through research have chosen to implement their Decision Support System (DSS) separately from the MMIS.

Almost 50% of States researched are undergoing procurements or DDI. Of those involved in DDI, ***almost half experienced significant delays*** and over 2/3 are implementing a system that has not been certified.

To support planning for the procurement strategy in Colorado, the Department must start considering technical and system needs, procurement options, collaboration required among stakeholders, contract accountability expectations, and governance for the procurement of the MMIS. Vendor demonstrations and State research provided evidence of these trends for new procurements, but not all trends are comprehensively addressed by proven or certified systems nor are they consistently found across states.

These considerations, as shown in Figure 4 on the following page, are addressed in further detail in subsections 2.3 through 2.4.

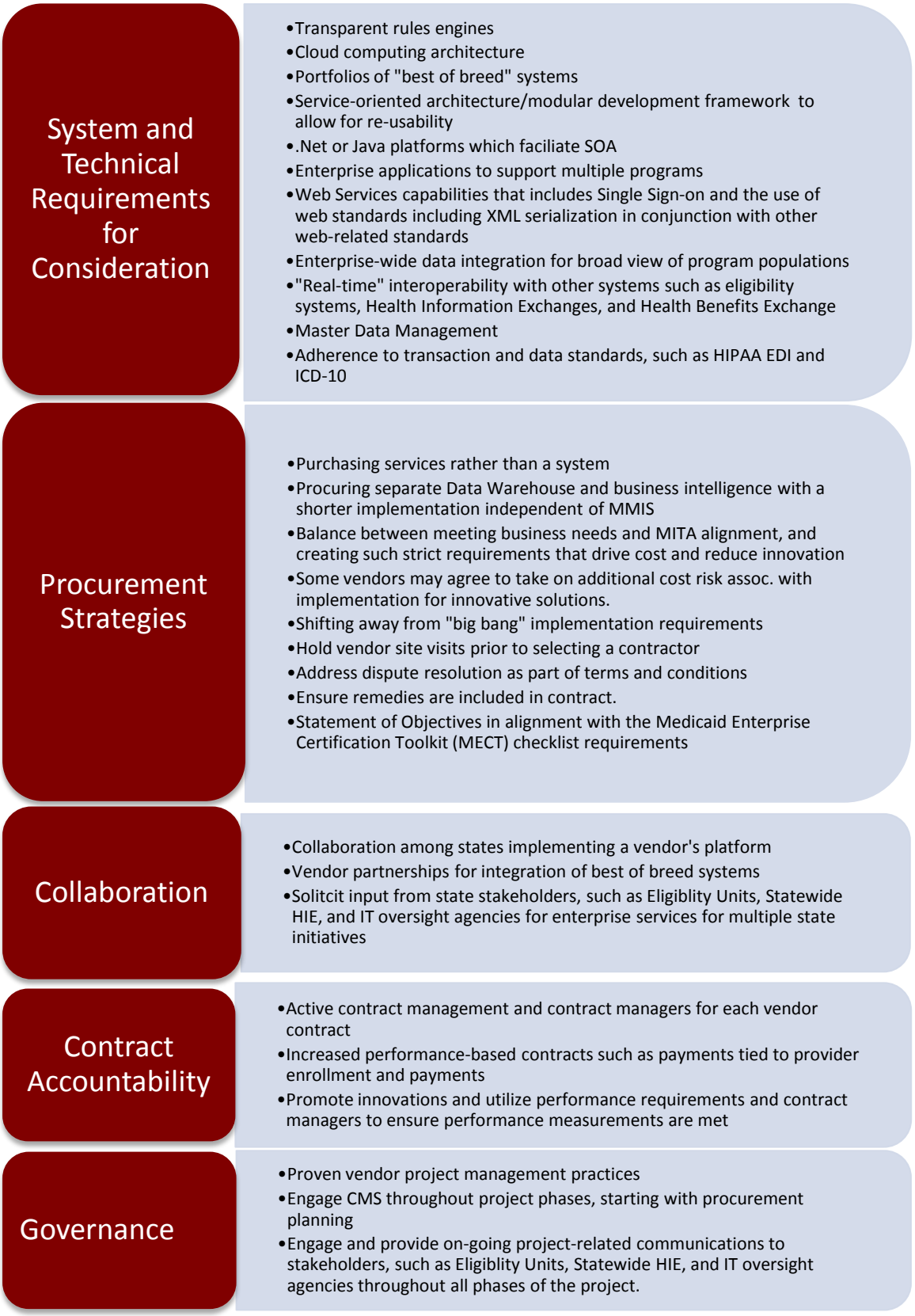

Figure 4 – Considerations for Innovative Solutions and Procurement Strategies

2.2 – Research Methodology

Our approach to conducting MMIS procurement and implementation research was to gather information from multiple sources, including state leaders and regional CMS resources. Public Knowledge contacted states, required per the RFP and as requested by the Department, directly via phone, email or in-person meetings. Since some states were more responsive than others, we supplemented our research using online resources such as the CMS website, state Advanced Planning Documents (APD), press releases and other government websites with MMIS and procurement information. Information from Executive interviews, visioning sessions, and interviews with MMIS interfacing system stakeholders was used to identify additional research requirements and areas of focus. Specifically, we interviewed system stakeholders from Colorado Benefits Management System (CBMS), Office of Information Technology (OIT), Colorado Health Benefits Exchange (COHBE), Colorado Regional Health Information Organization (CORHIO), Statewide Data Analytics Contractor (SDAC) Data Warehouse and Portal, and the Provider Web Portal. Our state research is organized as follows and described in subsequent sections in more detail.

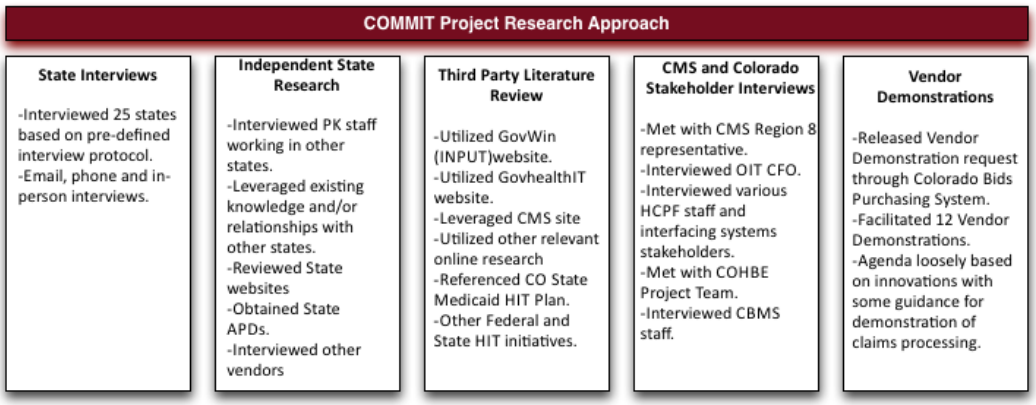

Figure 5 – Research Methodology

We selected specific states for our research based on the following factors:

- RFP requirements and or states specifically requested by the Department
- Identification of state procurements with strategic and/or innovative solutions
- Identification of states with recent implementations or procurements, as well as states with procurements in process
- States with critical lessons learned
- Cancelled projects
- Delayed MMIS implementations
- Leveraging existing knowledge and relationships with other states

2.2.1 – State Interviews

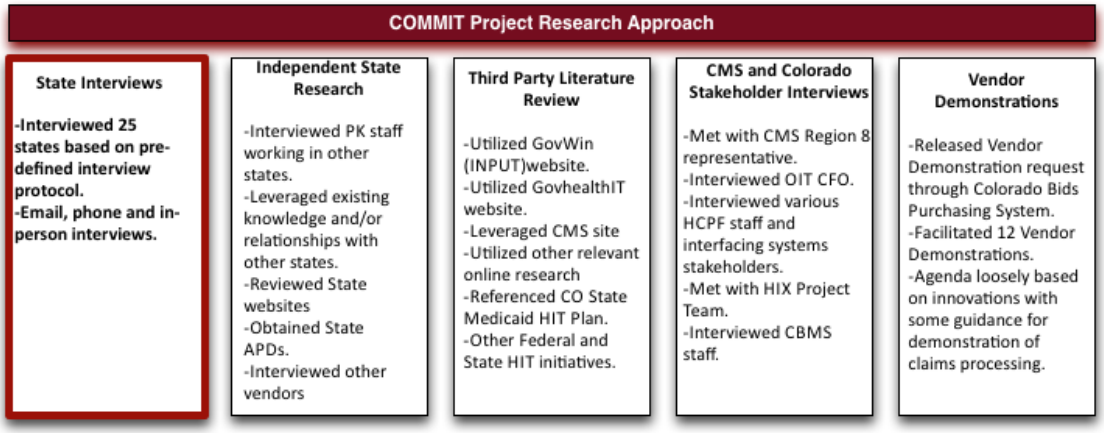

Figure 6 – Research Methodology: State Interviews

Our research includes interviews with other states in order to find out about recent procurement strategies used by other states, any valuable information regarding the procurement process, lessons learned, notable MMIS enhancements, MITA status or other innovations related to service oriented architecture (SOA), interoperability or 'Commercial Off The Shelf' (COTS) integration.

We obtained state contact information from a list of State Medicaid Directors provided by the Department, in addition to online research and assistance from CMS regional contacts. We contacted 35 states via phone, email and/or in-person interviews; 25 of those states responded. In exchange for their assistance with our research, we offered to share a copy of the final, Department approved research report.

Prior to contacting other states, we created a research protocol as a tool to assist with data collection and tracking throughout the research and interview process. This tool was created in Microsoft Excel, and contained various questions related to MMIS procurement, implementation status, and implementation strategy.

State Research Protocol

- Procurement status and strategy
- Implementation status
- Contract status
- Vendor information
- Lessons learned
- System advantages and disadvantages
- CMS certification status
- MITA status
- Partnerships with other states
- Implementation and/or maintenance costs
- Has state taken any initiatives to Integrate HIE and EHR processes into the MMIS

Status of state contact requested in RFP:

- AK – Direct Contact
- CA – ***No Direct Contact***
- IA – ***No Direct Contact***
- ME – Direct Contact
- MA – ***No Direct Contact***
- MT – Direct Contact
- NE – Direct Contact
- NH – Direct Contact
- OR – Direct Contact
- RI – ***No Direct Contact***
- WA – Direct Contact

We had direct contact (via phone, email or in-person) with the following states: Alabama, Alaska, Arkansas, Connecticut, Hawaii, Idaho, Kansas, Maine, Maryland, Michigan, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oregon, South Carolina, Utah, Washington, Wisconsin, and Wyoming.

Appendix A of this report contains a summary of state research findings.

2.2.2 – Independent State Research

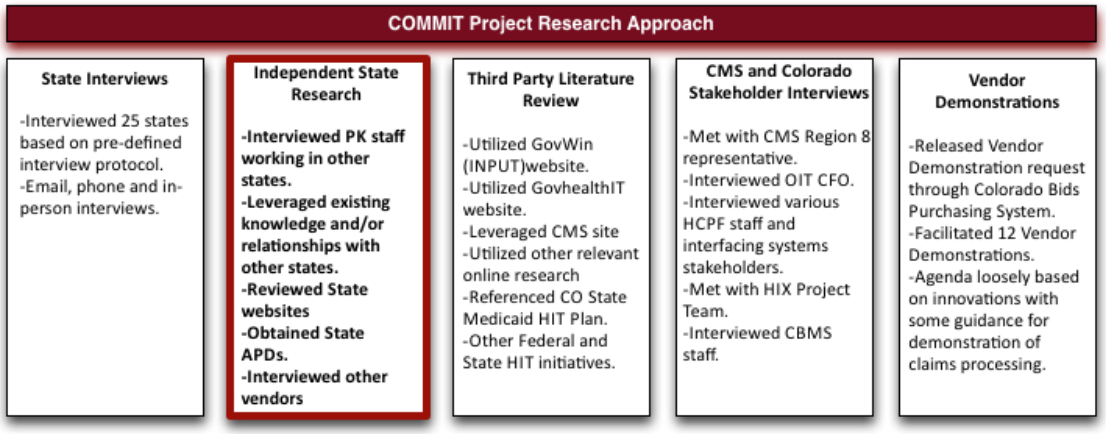

Figure 7 – Research Methodology: Independent State Research

In addition to contacting relevant states, our approach included independent state research. In many cases, existing client and vendor relationships enabled us to obtain contact information and leverage referrals for additional research. To supplement our discussions, we utilized state websites to collect other basic data related to the most recent MMIS procurement and/or system implementation. In addition to state websites, we obtained and reviewed state APDs where possible.

2.2.3 – Third Party Literature Review

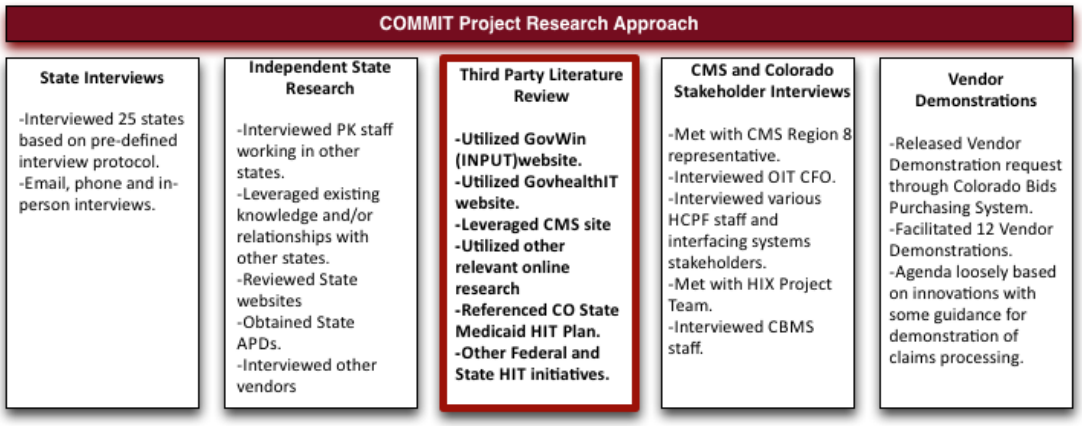

Figure 8 – Research Methodology: Third Party Literature Review

We conducted a review of third party literature to augment our research approach. We found several articles related to state MMIS implementations regarding CMS certification, lessons learned, innovations, and other pertinent information. Two specific industry websites that we leveraged for our research were the GovHealthIT website and the GovWin (INPUT) website.

We leveraged the CMS website to obtain state contract status information, MMIS CMS certification information, MITA framework guidelines and whitepapers, as well as the Seven Standards and Conditions for funding and other relevant documentation.

We reviewed the Colorado State Medicaid HIT Plan and other current Federal and State health information technology initiatives to ensure that our research methodology and protocol was strategically aligned.

2.2.4 – CMS and Colorado Stakeholder Interviews

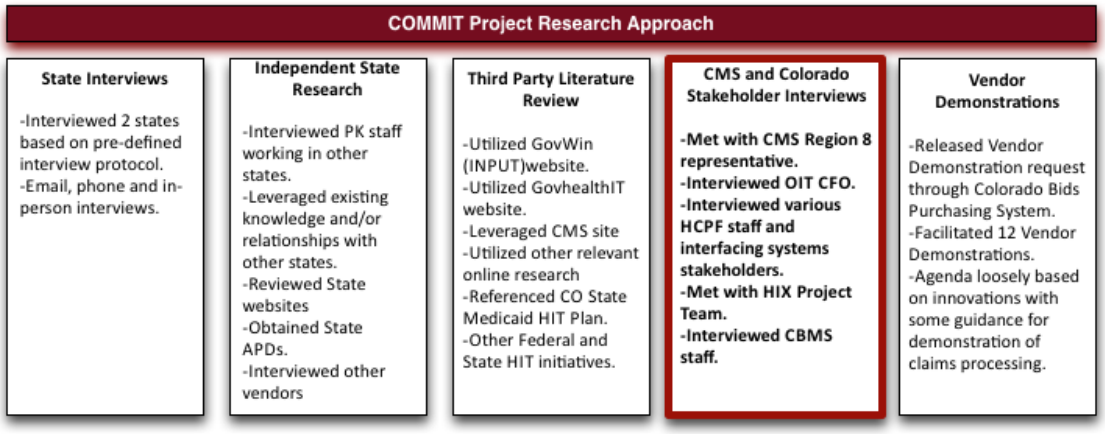

Figure 9 – Research Methodology: CMS and Colorado Stakeholder Interviews

An additional aspect of our research approach involved Colorado MMIS stakeholder interviews. The objective was to identify all interfacing systems and determine areas that should be addressed during the requirements phase. Interviews included CMS Region 8, the Health Insurance Exchange, Colorado Regional Health Information Organization (CORHIO), COMMIT Project Team members, CBMS Staff, and Colorado's Office of Information Technology. Information from the interviews regarding the following MMIS interfacing systems will be used during the requirements definition phase: SDAC Data Warehouse, SDAC Web Portal, Provider Web Portal, Prior Authorization Web Portal, Business Utilization System (BUS), All Payor Claims Database (APCD), Decision Support System (DSS), and Colorado Financial Reporting System (COFRS).

2.2.5 – Vendor Demonstrations

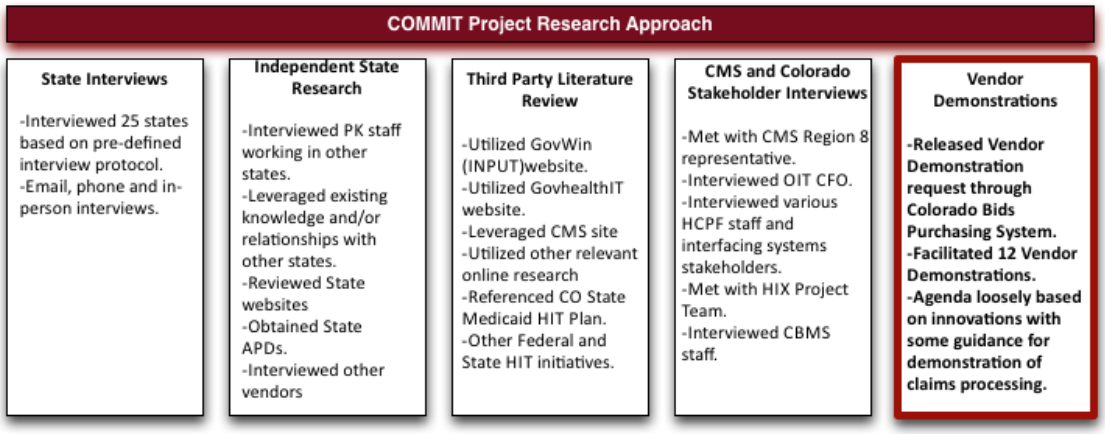

Figure 10 – Research Methodology: Vendor Demonstrations

Based on feedback from the Colorado MMIS Procurement kick-off meeting in November 2011, Public Knowledge organized and facilitated a MMIS Vendor Fair. A total of twelve vendors participated in the fair, which was held from December 5 through December 19, 2011. Public Knowledge contacted the states of Montana and New Jersey prior to soliciting vendors to leverage insight from their prior MMIS vendor fair experiences. Table 4 provides a summary of vendor information for core claims processing systems. Table 5 provides a summary of vendor information for services and supporting systems.

Vendor Fair Key Points

- Public notice posted to Colorado Bid Information and Distribution System (BIDS) website
- Vendor demonstration format was consistent for all vendors
- Vendor Q & A consistent for all vendors
- Time allotted for demonstration: 2.5 hours

The following vendors presented during the vendor fair:

- Accenture LLP (Accenture)
- ACS State Healthcare, LLC (ACS)
- CGI Technologies and Solutions Inc. (CGI)
- CNSI
- Computer Sciences Corporation (CSG)
- GL Solutions
- HP Enterprise Services, LLC (HPES)
- Molina Medicaid Solutions (Molina)
- Noridian Administrative Services, LLC (Noridian)
- Oracle
- Salient Management Company (Salient)
- Thomson Reuters (Healthcare) Inc.

Table 4 – Core Claims Processing Vendor Demonstration Summary

*All Information presented in tables below is based on demonstration and vendor claims made during demonstration and has not been independently validated.

Vendor: Product Name	CMS Certified	Implemented	Fiscal Agent	MITA Aligned	Existing Clients	Notable Features
Core Claims Processing System						
CNSI: eCams	✓	✓	✓	✓	WA (certified), MI (certified), LA (just awarded), MD (just awarded)	Primarily web-based (according to demo, 100% web-based) Just entering the fiscal agent (FA) space: Will be acting as FA for LA (with help of Noridian) Partnering with CSC (to be FA) in MD
Molina Medicaid Solutions: Health PAS	✓	✓	✓	✓	Fiscal Agent: LA, ID, ME, NJ, WV ME (certified), ID (waiting on certification)	Collection of COTS products Core Claims Processing System (TriZetto) was rated "Strong positive" according to Gartner Industry Research Report, April 2011 Web-enabled
ACS State Healthcare: Health Enterprise			✓	✓	NH, ND, AK (in process of implementing) Negotiating with CA and MT	Long history of fiscal agent services Collaboration among client states currently implemented Several states currently implementing new 'Health Enterprise' system
CSC: TranScend	✓	✓	✓	✓	NY (eMedNY), NC (NCTracks), MA, MD (just awarded fiscal agent only)	Use of Content Management System with applications 'Platform as a Service' offering – pay on a usage basis for server in a cloud Multi-Payor System

Vendor: Product Name	CMS Certified	Implemented	Fiscal Agent	MITA Aligned	Existing Clients	Notable Features
Core Claims Processing System						
HP Enterprise Services: Interchange	✓	✓	✓	✓	OR, CA, NV, OK, KS, WI, AR, KY, TN, IN, OH, AL, GA, NC, PA, FL, DE, CT, RI, MA, VT, NH	10 MMIS Interchange Certifications, 2 states under new CMS process (WI, MA) Multi-program functions capable of supporting State plans outside of Medicaid Integrated rules engine and robust DSS Application for mobile computing (iPhone)
Accenture: Accenture Public Health Platform (APHP)				✓		COTS product Web-based system Iowa is first state to award them MMIS contract Member and Provider portal

Table 5 – Services and Supporting Systems Vendor Demonstration Summary

Vendor: Product Name	CMS Certified	Implemented	System Integrator	Fiscal Agent	MITA Aligned	Existing Clients	Notable Features
Services and Supporting Systems							
GL Solutions: GLSuite		✓				Customers in 18 states who are "tracking" (of regulatory entities) something. NC – Provider Management piece of MMIS	COTS components New version coming out December 2010 Specialize in Government Regulatory Issues only (Case Management)
Noridian Administrative Services: OnBase, EXACT, RapidApp			✓		✓	IA (fiscal agent), LA (will partner with CNSI for FA) BCBS ND, NE and WY	System integrator and MMIS component vendor; operational services OnBase EDMS: workflow tool (part of Iowa's certified MMIS solution) EXACT: Provider Management (not yet certified) RapidApp: Provider Enrollment (not yet implemented in a certified MMIS solution) EDMS product suite, manufactured by Highland Software
Oracle						Oregon: HIX Vermont: Enterprise Architecture work	Business Analysts have ability to write the rules Promising system in Health & Human Services framework Partnerships with other vendors but do not have viable MMIS at this time Strong Enterprise Architecture COTS product

CGI Technologies and Solutions: Healthation AcceleHeath Enterprise Service Bus (ESB)			✓	✓		Total solution is not certified, but some of the components are certified.	All modules (COTS) are currently in production (some modules are CMS certified) Partners with variety of vendors to create modular system 'Virtual MMIS': Accelehealth (rules engine), Enterprise Svc Bus, SOA, BRS, COTS Browser-based Healthation was ranked promising" in Gartner Industry Research Report, April 2011
Thomson Reuters: Advantage Suite: DSS Intercept: solution framework				✓		12 State Medicaid agencies and CMS rely on Advantage Suite 29 states use Oracle product Advantage Suite has been certified in three states (Nebraska, Nevada, and New Hampshire). Certification is pending in Idaho and Maine.	Web-based interface, SOA, focus on developing KPIs, service exchanges and interoperability Cognos is the primary business intelligence tool DSS & Solution framework Geo mapping available from DW and Data Marts
Salient Corporation						NY's Medicaid program and health care in 12 counties	Salient's Business Intelligence has been positioned by Gartner, Inc. in the "Niche Players" quadrant of the "Magic Quadrant for Business Intelligence Platforms", February 2011

2.3 – State MMIS Environment

Twenty-five percent of states responding to a recent survey indicated that building a new MMIS was their number one priority.[2] Additionally, through our research we found most states are either procuring their MMIS, implementing a new MMIS, or have recently cancelled projects.

Multiple states have cancelled recent procurements and implementations due to a range of problems, including an overwhelming number of contract deficiencies, incomplete requirements, and breakdown in negotiations over defects versus enhancements. Also evident through our research is the fact that Procurement and/or DDI status for many of these states is delayed and uncertain due to ongoing contract negotiations, lawsuits, and major issues identified during testing.

50% of states we researched established separate contracts or procurement of their Datawarehouse/DSS. States are moving away from risky "Big Bang" implementations.

In addition, many states are trying to find the balance between separating procurements for core functionality, services and operations, and managing multiple contractors. The component approach to MMIS procurement is evident by the number of separate data warehouse/DSS contracts identified through research. In fact, twenty-five of the states we researched established separate contracts or procurements for the data warehouse/DSS from the MMIS. States increasingly do not want to incur risks associated with "Big Bang" implementations of all components of a MMIS.

Figure 11 represents MMIS activity across states. Results are based on the status of research in mid-January. See Appendix A for a detailed summary of states included in our research.

[2] e.Republic.com

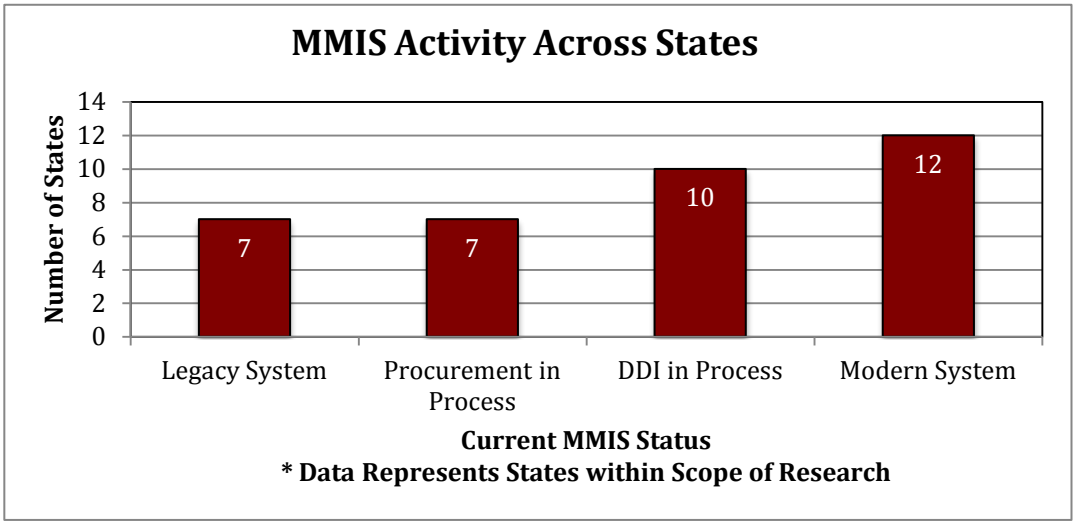

Figure 11 – MMIS Activity Across States

MMIS Activities Defined

- ***Legacy System:*** *System implemented more than 5 years ago*
- ***Procurement in Process:*** *State is actively planning procurement or is in the process of RFP development or evaluation*
- ***DDI in Process:*** *All Activities occurring between contract award and system 'go-live' date*
- ***Modern System:*** *System went 'live' within the past 5 years*

The extent of MMIS activities across states is highlighted by the examples below:

Implementations In-Progress:

- North Carolina recently selected a contractor to support implementation of an enterprise architecture for several health and human services programs.
- Alaska is currently implementing the web-based MMIS from ACS (Health Enterprise).
- Ohio is implementing HP's Interchange solution.
- Idaho has just completed implementing an MMIS using multiple vendors and is pending CMS certification.

Recent Procurements:

- Iowa recently selected Accenture as the DDI vendor for its new MMIS.
- Louisiana recently awarded CNSI as the prime contractor and for DDI, and Noridian will assume fiscal agent operations.
- Montana recently completed contract negotiations with ACS for the Health Enterprise solution and Ingenix for a DSS.
- North Carolina recently procured CSC's Transcend system, focusing on Federal requirements.

Figure 12 below shows the breakout of procurement and DDI status across current projects.

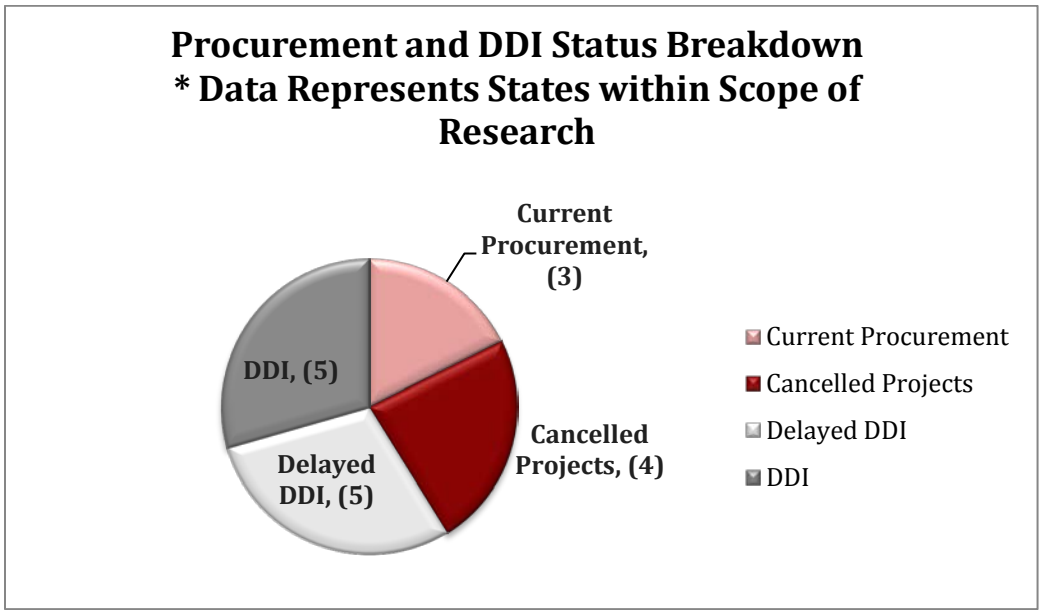

Figure 12 – Procurement and DDI Status

Procurement and DDI Status Breakdown Defined:

- ***DDI:*** *State is currently in DDI phase with no major delays*
- ***Delayed DDI:*** *State is currently in DDI phase with implementation delays*
- ***Procurement:*** *State is actively planning procurement or is currently in procurement process*
- ***Cancelled Projects:*** *State was actively in procurement or DDI phase and project was cancelled*
- *Breakdown represents number of states in each status, totaling the number of states currently in procurement or DDI phase.*

Cancelled projects, including procurements and projects underway, are highlighted by the following examples:

- Arkansas cancelled its procurements due to complexities associated with the procurement approach and recently released a revised procurement strategy.
- West Virginia recently cancelled its recent procurement due to technical flaws in RFP specifications.
- New York recently cancelled its procurement due to disagreements on contract terms and conditions.
- Nebraska cancelled a recent implementation due to incomplete business requirements and recently initiated planning for a new procurement.
- South Dakota recently terminated their contract with a contractor due to disputes over defects in functionality versus enhancements.
- Maine was unable to process claims for six months after implementation and issued $575 million dollars in interim estimated payments to providers. After a major remediation release failed in 2006, it was evident that the system would never be federally certifiable and a decision was made to replace it.

Lastly, Table 6 on the following page represents a breakdown of core systems by vendor. This is not a comprehensive view of vendor or system prevalence; it represents only the states within the scope of our research. For a comprehensive list of vendors by state, refer to Appendix G. This list is actively maintained and published by CMS. The most recent copy published by CMS is dated September 19, 2011.

Table 6 – MMIS Summary by Vendor

** Indicates that system has been CMS certified in at least one state*

Note: The table below includes information from states that were included within the scope of our research, and is not an indication of total vendor presence across the United States.

Vendor/System	Number of States	States Implemented
HP Interchange *	9	AL, CT, FL, KS, MA, OH, OK, OR, WI
ACS Omnicaid (Legacy System) *	1	NM
ACS Health Enterprise	5	CA, AK, MT, NH, ND
CNSI eCams/CHAMPS *	5	LA, MD, MI, SD, WA
CSC Transcend * *Note that the latest version of Transcend has not been CMS certified. System last certified in 2006.*	2	NY, NC
Molina *	2	ID, ME
Accenture	1	IA

2.3.1 – Identified Innovative Solutions

Innovations that we identified can be categorized into two areas: 1) ideas being sought, developed, or implemented by states; and 2) innovations as presented by vendors. State innovations include innovative approaches to implementation or innovative technology. Note: Innovative procurement approaches are addressed in subsection 2.4 below.

State Innovations:

Enterprise Applications

Enterprise applications are an innovative trend that many states are planning to adopt. Enterprise applications are a collection of software with common business applications, business logic support functionality, and development tools for building applications unique to the organization. They are intended to be an enterprise-wide solution that improves productivity, efficiency and data integrity. This approach allows states to rethink how a new MMIS might provide a core set of services to multiple program areas. In North Carolina, the state is working on a single enterprise application called NCTracks that will use Web services to serve five different health and human services programs with a single portal on the front end. CSC was selected as the vendor for DDI. The new system anticipates offering enhanced reporting and analytics compared to the state's legacy system currently in use. According to various state contacts, CMS regional contacts were highly satisfied with the procurement approach as it aligned MITA concepts promoting interoperability and focused on CMS certification requirements.

State Innovations

1. New Jersey and Michigan have enterprise data warehouses
2. Idaho implemented COTS products and had four primary contractors
3. Ohio and Alaska are collaborating for implementations of a new web-based MMIS platform
4. Washington was one of the first states to implement a fully web-based system
5. State innovations do not necessarily come without impacts to schedule, cost, and scope

Kansas has a contract with HP for the Interchange product. The MMIS is being architected to allow the Kansas Health Policy Authority (KHPA) to maintain all its health care programs and services from a single source within a scalable system that could grow with the state's needs. According to an APD from 2011, current enhancements will begin to move KHPA

from current level two capabilities to level three MITA maturity level in the business areas. Kansas also implemented Accenture's eligibility system.

Oklahoma is implementing a web-based Medicaid enrollment system from HP Interchange, that has a high degree of interoperability with their MMIS. The eligibility system and MMIS are both administered and managed by the same agency. Oklahoma made the decision to pulled Medicaid eligibility for the SoonerCare (Medicaid) program from the larger health and human services eligibility system. As a result, Medicaid eligibility and the MMIS are highly integrated.

Procurement and Contract Strategies

Another innovation involves carving out critical functionality for procurement purposes. The State of Iowa released several RFPs in relation to their recent MMIS re-procurement. A vendor could bid on the core MMIS and related operations, a Pharmacy Point-of-Sale (POS) system and related operations, and an integrated eligibility system to meet all federal and state requirements and CMS certification. A primary vendor could partner with a subcontractor to achieve a full set of *services* for each of the scopes of work. Accenture was selected for as the prime MMIS contract. While Accenture's web-based platform is aligned with a service-based approach to MMIS functionality, it still has not been fully implemented in any state to-date.

Arkansas pursued procurement of a new MMIS and associated Professional Services through a multi-contract and multi-vendor approach early in 2011. The initial strategy consisted of 23 different contracts, encompassing the following components: Project Management Office, Core Project, and Products and Professional Services. Based on industry responses, procurement lessons learned, and the complex challenges associated with managing multiple contracts, they cancelled the 2011 MMIS procurements. They recently released their strategy for their 2012 MMIS procurement. As part of the procurement strategy, they presented plans for the release of three RFPs: 1) core system components and services; 2) pharmacy system and services; and 3) a data warehouse with an emphasis on outcomes (meeting federal certification requirements). The core system will be implemented in two phases. Phase 1 will consist of functionality that meets current processing capabilities and federal certification requirements. Phase 2 will meet CMS future processing capabilities. Phase 1 must be

completed within 36 months and Phase 2 will be implemented 12 months later. In addition, the contractor will be incentivized for early implementation.

The State of Wyoming released an RFP in 2010 that allowed vendors to bid on one or more contracts for dental claims, pharmacy claims, and medical claims. Their strategy was to implement a 'best of breed' system via a takeover with minimal modifications to the MMIS. Region 8 CMS was reluctant to approve the RFP because it allowed for separate responses to Dental claims, Pharmacy claims, and the core MMIS. Although developing separate RFPs is effective at generating more competition and enabling "best of breed" integration, CMS does not like the additional cost (total cost is higher when components are split out) and risks that go along with that approach. The takeover procurement resulted in two different vendors: one for the MMIS and Dental and one for pharmacy. This innovative strategy is more aligned with contracting services rather than strictly procuring a traditional core MMIS system.

Enterprise Data Warehouses

Another innovative trend is the use of enterprise data warehouses and business intelligence tools. New Jersey's Public Health and Human Services Programs shares a common data warehouse for Medicaid, TANF, Child Care Assistance, Food Stamps, Addictive Services, Mental Health, and other General Assistance. Data from the agencies' human services is pooled to provide more comprehensive management of service offerings and decision-making across programs.

Michigan used a phased approach to implement its data warehouse. Phase 1 focused on Medicaid fraud and abuse integrated claims, SURS, and policy support. Phase 2 encompassed managed care data, and Medicaid eligibility table data. Phase 3 was focused on the enterprise and included other program data, such as TANF, SNAP, and Foster Care. There are currently more than 9,000 users of Michigan's data warehouse.

Web-based platforms

Many states are shifting towards full web platforms. Washington was one of the first states to implement a fully web-based claims processing system. The state transferred CNSI's web-based system implemented in Maine. The system is state-operated with fiscal management by

CNSI. Even though the system was a transfer, it is estimated that about 70% of the system was custom built for Washington.

Idaho recently implemented Molina's COTS web-based solution that required extensive configuration. The 'Health PAS' solution has been certified by CMS in other states. According to research, the system supports multiple benefit plans and is ICD-10 compliant. In addition, Idaho integrated several other COTS solutions as part of their Medicaid systems environment. Idaho underwent a two and a half-year implementation of the Molina Health PAS product and other systems and is awaiting CMS certification. Idaho wanted a modular, interoperable system, so they pursued a strategy with 4 separate RFPs to get the best in the breed. Although Molina was awarded the contract for System Integrator, the State currently operates as the System Integrator due to the number of vendors involved and the lack of vendor incentives to support the work led by Molina as the System Integrator.

Collaboration

The state of Alaska is in the process of implementing ACS' new web-based system. As part of state-specific implementations, the states implementing the ACS solution have been collaborating for planning and implementation purposes. Collaboration includes conference calls and meetings with key state staff and vendor staff. North Dakota and New Hampshire have been engaged in regular sharing of information and leveraging resources since both states are implementing the same ACS platform. These states have already experienced significant DDI delay, so this collaboration has assisted those states by providing 'lessons learned' to help minimize further delays where possible. In addition, Alabama collaborated with other states to share information related to HP's Interchange solution. This type of collaboration is highly recommended by states Federal partner. Lastly, Hawaii and Arizona are the only two states identified through research that truly share an MMIS. In general, inter-state collaboration can help reduce some costs by improving efficiencies with shared knowledge. In addition, it can help reduce and mitigate risks by providing knowledge from past experiences and lessons learned.

Cost Considerations

Even though Nevada has not updated their MMIS in recent years, the state released an RFP in 2010 for a core MMIS and MITA-aligned peripheral systems and tools while requiring

bidders to provide cost proposals that do not increase costs for the state. Despite the cap on additional costs, Nevada received three bidders and contracted with a vendor for the takeover.

Vendor Innovations:

Functions and Components-based Features

Vendors are marketing new or enhanced systems that claim to have greater alignment with the MITA framework than mainframe systems, as identified through vendor demonstrations. The trend towards component-based development helps to propagate a shift away from "big bang" implementations as component-based development subdivides a system into smaller parts (modules) that can be independently created and then used in different systems to drive multiple functionalities.[3] Although vendors have developed new systems with component-based functionality, the average implementation time has not decreased, with most projects still completing late and/or over budget. In conjunction with Service-oriented architectures, vendors claim abilities to publish to web services for data sharing purposes among different components.

Building on modular development is a move towards plug-and-play systems; in other words, independent systems can be introduced into the environment. The system may appear to be solely an MMIS, but various independent components serve as the MMIS, which eases replacement or enhancements of system functionality. Using standard interfaces and API's between all components, upgrades within each system can be integrated into other systems.

States are demanding more transparency in the business rules contained in the MMIS, and vendors are responding with rules engines that have the potential to span multiple programs. For instance, Medicaid benefit plan rules should be modifiable without significant programming hours. Some tools allow rules to be changed in almost-plain language through a format similar to a Microsoft Word document.

Below are additional vendor claims regarding innovation:

- Vendors are promoting cloud-based systems, in which the system resides in "the cloud." Features in the cloud include Provider Portals, Member Portals, and Staff portals. Cloud

[3] www.wikipedia.com

computing is the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided without requiring cloud users to know the location and other details of the computing infrastructure. Vendors provide infrastructure convergence, which allows organizations to get their applications up and running faster, with easier manageability and less maintenance. It also provides the vendor with an ability to more rapidly adjust IT resources (i.e. servers, storage, and networking) to meet fluctuating and unpredictable business demand.[4]

- Vendors described how common system processes and services could be used across the Medicaid Enterprise to provide better support to multiple business processes. This can be supported by translating business and system requirements so that they align with MITA business functions.
- Development of enterprise views for reporting and performance measurements. In addition, users, providers, and even members may have access to customizable dashboards that provide visual presentations of high level enterprise data with capabilities to drill down to low level data that is often buried deep within the organizational enterprise. The primary benefits are the ability to make more informed decisions based on collected business intelligence, align organizational strategies and goals, measure efficiencies/inefficiencies, and to provide performance metrics.[5]
- Workflow functionality gives end-users the ability to manage business processes across functions and programs. By using automated workflows, workloads can be leveled across fiscal agent staff. For example, fiscal agent staff can make internal assignments based on a provider request for information or provide request for technical assistance. Or, staff can help resolve claims using workflow assignments; staff can follow defined steps to process a claim.

In addition, current MMIS vendors and other non-MMIS vendors offer enterprise solutions that could complement MMIS solutions, including case management, eligibility determination and benefits management, and master data management. These solutions are also most likely rules-based, service oriented architectures as well.

[4] www.wikipedia.com
[5] www.wikipedia.com

Systems as a Service

Some private sector vendors and payors are marketing fiscal agent and MMIS components as a service, which is a transition from purchasing, building, and managing a stand-alone MMIS and associated operations. In addition, platform as a service was highlighted during vendor demonstrations. Through this model, states can pay a service usage fee for systems and services in a cloud.

Vendors claim that buying a service reduces risky implementations and claim it can reduce implementation timeframes and cost. This can be evident in states for aspects of Medicaid services, such as managed care services, but has not been identified through research for a full MMIS and fiscal agent operations.

In addition, the Department could consider leveraging an existing claims processing infrastructure through a partnership with a third party such as Colorado Access. Colorado Access is currently a managed care plan and contracted with the state for risk and non-risk Medicaid physical health programs and behavioral health programs. They are the largest CHP+ HMO in the state, and manage the Department's Fee-for-Service CHP+ Network.

Colorado Access has an existing infrastructure for fiscal agent operations, including call centers; they currently take member and provider calls and process about 1 million claims per year. They also have capacity to take on additional capacity for claims processing and are interested in exploring additional options for service offerings.

They recently completed a procurement for their claims processing and selected Trizetto's QNXT product, which was designed for Medicaid plans and is ICD-10 compliant. They are looking to implement this product in a one-year timeframe.

Colorado Access has 185 employees (all are in Colorado). They are responsible for the majority of their administrative functions, but have contracted a vendor to perform some claim functions. For their implementation, Colorado Access will receive all of the claims, finish processing claims, and send images to the vendor for paper claims for Optical Character Recognition. They contracted with Trizetto for configuration services and share some of the responsibility for updating provider records.

In addition, a private insurer could take on full operation and management of state fee-for-service programs through: 1) privatized claims processing and provider payment solutions for

all forms of care, including medical, behavioral, pharmacy and LTC; and 2) benefit management designed for fee-for-service population consisting of prior authorizations, utilization management, care coordination and home care management.

Table 7 below highlights features and functions that are considered innovative and that were presented by vendors through demos. Note that features and functionality apply to the vendors' systems, and the vendors may not have demonstrated an MMIS. Instead, the feature and functionality could apply to a DSS or other system highlighted during demonstrations.

Table 7 – Features/Functionalities Highlighted in Vendor Demonstrations

Feature/Functionality	Vendor Feature/Functionality Highlighted in Demos
Web/browser-based	CNSI, HPES, Accenture, CGI, Thomson Reuters, Salient, Oracle, ACS, Noridian
Service Oriented Architecture	Accenture, Molina, Thomson Reuters, Salient, Oracle, GL Solutions, ACS, CGI, CNSI, Noridian
Flexible Rules Engine	HPES, Accenture, Oracle, GL Solutions (build into rules engine), CSC, ACS, CGI (partners to provide rules engine), CNSI, Noridian, Molina (TriZetto)
Web Services	Molina, HPES, CGI, Accenture, Oracle, GL Solutions, CNSI
Work flow Management	Noridian, Accenture, Oracle, GL Solutions, CSC, ACS, CGI (partners to manage workflow)
Enterprise Architecture	Oracle, Thomson Reuters
Platform as a Service/Software as a Service	CSC, Accenture

2.3.2 – Vendor Alliances and Partnerships

With the push towards more modular, plug and play systems, new and evolving vendor alliances and partnerships have emerged. Vendors are working on developing independent components based on newer open technologies, such as C#/.NET, smart clients, Web

services layer, Java Platform Enterprise Edition (Java EE), and relational database management systems, including Oracle, SQL Server, and DB2. Net. Also evident are segregations between system developers, integrators, and fiscal agent operations. Many vendors have developed partnerships with software developers to deliver these component pieces, and new vendors continue to enter the arena for system development and fiscal operations, including claims processing and adjudication, benefit plan management, provider portal, recipient portal, provider and customer management, TPL, auditing features, reporting, decision support, and capitation management.

Below are examples of these partnerships.

- ACS is the lead contractor for the Texas Medicaid and Health care Partnership, which include contract work with Accenture, Computer Associates, Hewlett-Packard, MMC Group, Public Consulting Group and SBC Communications.
- ACS partnered with CGI for California's MMIS Fiscal Agent contract.
- ACS has an established partnership with Ingenix, an OptumInsight tool, for decision support tools.
- Molina utilizes a claims processing engine from TriZetto, an IT health care management company that includes partnerships with BlueCross BlueShield. Trizetto was recently selected for Colorado Access' claims processing procurement. Molina is Trizetto's biggest customer.
- Third party insurers, such as UnitedHealthcare, partner with the large MMIS players for core administrative systems. Examples of such systems include those offered through OPTUMInsight, including Ingenix.
- Health Information Designs, Inc. subcontracted to Hewlett-Packard on the following state MMIS's: Pennsylvania, Kansas, and Wisconsin.
- CSC partnered with Bull HN Information Systems Inc. and ACS on New York's MMIS and FA contract.

Innovations for Private Sector Health Care Insurance Systems:

The private sector is undergoing similar transformations in how IT supports health care payor operations. "A majority of the U.S. health insurance core administrative applications will be replaced, upgraded, or remediated between 2011 and 2013."[6]

Gartner noted that benefit plan management, claims adjudication and pricing, customer and provider service, and workflow emerge as critical capabilities for new innovations. "For example, the ability to quickly and easily design and configure reusable benefit structures as demonstrated by the challengers enables the development of value-based benefits, consumer-driven health models and other dynamic benefit plans, creating new expectations for benefit plan management across applications."

According the Gartner's Industry Research Note[7], the following companies are currently competitive for core health care administrative systems, which includes claims processing and adjudication and benefit plan management: Eldorado, Healthation, Healthedge, ikaSystems, Monument Systems, and TriZetto.

2.3.3 – MMIS Planning and Implementation Costs

MMIS contract values have continued to increase in recent years due to various factors, including policy and program requirement changes, new and evolving health care IT standards and initiatives, increased beneficiary enrollments, and increasingly stringent contract terms and conditions. Project risks also continue to drive up vendor costs. Below are estimated *average* costs for procurement planning, DDI, enhancements of core MMIS and additional components (not including DSS, ad hoc reporting systems and other non-core functionality), and project management costs. Cost estimates are broken out separately because not all components below are part of every project and allocated

Average MMIS Operational and DSS Costs

1. DDI: $50 to $100 million
2. Enhancements, Maintenance, and Fiscal Agent Operations - $50 to 150 million (excludes California)
3. DSS DDI and Operations: from $10 to $50 million
4. Stringent requirements and forcing a vendor to accept all risk and remedies drives cost

[6] Gartner's Industry Research Note[6] G00205369, Robert H Boos, 29 April 2011
[7] Gartner's Industry Research Note[7] G00205369, Robert H Boos, 29 April 2011

the same way (i.e. DDI typically includes IV & V and project management, but it's broken out below based on the available data):

- Planning — Includes procurement activities, defining the scope of the project, establishing preliminary communication and supporting business processing, establishing project management infrastructure as input to the project management office, assessing current business processes and business rules, identifying gaps in needed functionality, and DDI planning - $1 million to $3 million, typically ranging from 5 to 9 months
- DDI — Cost is typically spread over a period of about 3 years, and cost allocation varies depending on project scope and transition/implementation strategy - $50 million to $100 million
- Enhancements, maintenance and fiscal agent operations — $50 million to $150 million
- Independent Verification and Validation (IV&V) — IV&V activities can occur during the planning phase, as well as during the last year of DDI - $2 million to $4 million
- Project Management Offices — $400,000 to $600,000

The lowest price for a core MMIS gathered during our research was $25 million, but the implementation was considered low-risk and occurred prior to MITA self-assessments. Costs vary depending on the complexity of the system. For example, enterprise Medicaid systems may be more costly to implement than a traditional MMIS. In addition, many states experience signficant contract amendments. One state had a $21 million dollar contract for the core MMIS, but required changes costing an additional $45 million. The highest cost identified was for California with a total of over $1 billion for the life of the contract, which included fiscal agent services. Washington was the second largest implementation cost with an estimated $140 million, which included pharmacy services.

Operational costs are also increasing and correlate with the overall size of the Medicaid program and the volume of transactions to be processed. While the cost to create and operate an MMIS may not differ greatly based on the size of a state, the state's client and provider population drives the cost of operations. The most challenging aspect of estimating operational costs is determining the scope. Some costs incurred by vendors may be amortized across operations rather than built into the implementation price, especially if the

RFP is structured to weigh the implementation costs more than the operational costs (DDI-Ops cost shifting). Some states simply consider their fiscal agent to be the company that operates and maintains the actual MMIS. Other states contract their fiscal agent to process claims, approve PAs, enroll providers, etc. As a result of scope variance, it is difficult to provide an accurate 'average' estimate for operational costs. Costs incurred by vendors responding to MMIS RFPs and costs associated with accountability for implementation delays increase the overall project risk and impact costs for states and vendors alike.

States may end up paying several million dollars for enhancements, such as ICD-10 and HIPAA 5010. For example, one state paid about $7 million for enhancemens associated with these federal requirements. With an average hourly cost of $100 to $150 for technical staff, large MMIS enhancements are quite costly to make.

North Carolina's 2008 MMIS cost proposals ranged from $69 million and $76 million for the complete MMIS that included pharmacy, dental, mental health, and SCHIP. The system is expected to be a "true multi-payor" system when it goes live. Based on their current challenges (some paid by the state, some absorbed by the vendor), contract staff estimate the system will cost $100 million when it is completed in 2013. Below is an example of North Carolina's operational cost break-down:

- Cost to own/operate/maintain the system (contractor owns the system until turnover, at which point the State takes ownership) - approximately $5 million to $6 million per year
- Cost to enroll and credential a provider - approximately $90 each
- Cost to process claims, Third Party Liability (TPL), Prior Authorizations, etc. – approximately $26 million to $28 million per year (this cost is NOT exclusive of system costs above, as this number includes some of those costs)
- Total annual cost (includes basic system maintenance only) - approximately $36 million to $38 million per year
- Annual cost of system modifications - approximately $8 million per year

In contrast, Maine's annual operations cost is around $30 million per year; we are unable to confirm whether this cost includes annual system enhancements or not.

As for data warehouse and decision support system, costs widely vary as well. South Carolina's five-year contract with Thomson Reuters is estimated at $10 million for DDI and operations, where North Carolina's contract with Thomson Reuters (for a little longer period) is around $50 million for DDI and operations. Various factors contribute to the large cost variance, including the scope of program integration, required data conversion, complexity of the integration, and the scope of Business Intelligence tools used in the solution.

Costs from pharmacy systems vary as well, but below is an example of estimated costs associated with Iowa's pharmacy system and services:

- Pharmacy Medical Services - $4,277,500
- RetroDUR - $663,000
- Pharmacy Prior Authorization - $2,781,000
- Preferred Drug List (PDL) and Supplemental Rebate Program - $834,000

Below is another example of estimated expenditures by service area associated with an enterprise Medicaid system implementation:

- Medical Services - $32,000,000
- Medical Support - $5,366,000
- Children's Health Care and Well-Child Care Promotion - $1,672,000
- Medical Prior Authorization - $5,500,000
- Long-Term Care Reviews - $18,000,000
- Health Information Technology - $800,000
- Member Services - $10,500,000
- Provider Services - $8,000,000
- Provider Inquiry and Provider Relations - $5,000,000
- Provider Enrollment - $1,700,000
- Member Inquiry and Member Relations - $1,000,000

Unless the state considers purchasing a standalone MMIS without pharmacy and other components, costs are expected to run from $60 million to $100 million for well-run projects that do not include exceedingly stringent requirements and customizations. Specific cost information for Colorado, including cost break-down for each phase (i.e. planning, DDI, IV&V, etc.) cannot be determined until the procurement strategy and projet scope have been finalized. Feedback received from the vendor community regarding the procurement strategy options may also provide more guidance for cost estimates.

Cost Drivers:

Variables that drive up cost include the following:

- **Including firm fixed price contracts with significant remedies for failing to meet schedule.** Most contracts are fixed price, but the remedies provisions drive the risk and consequently the cost.
- **Requiring tight or unreasonable schedules drive costs as well due to the risks placed on contractors**. Arkansas required a schedule that met ICD-10 dates in some fashion, but still cancelled the procurement citing this requirement as part of the reason.
- **Including requirements for change orders at no cost.** To mitigate the burden this risk places on the vendor, include a change order pool of hours into the contract.
- **Putting provisions in the contract that the vendor must make all modifications and upgrades driven by changing laws and regulations at its own cost.** This is a black hole for vendors, so they have to estimate costs associated with this.
- **Dictating the exact format and content of all deliverables.** If the vendor can't use its existing documentation as a starting point, a state will pay additional costs to recreate documents.
- **Requiring the vendor to recreate dozens or hundreds of legacy reports**. Reports are crucial, but with more modern query and reporting tools, it might not be necessary to recreate several mainframe-oriented reports. For example, North Carolina put about 2000 legacy reports into its RFP. Estimating 50 vendor hours per report, that is 100,000 hours creating reports. At a ballpark of $100/hr., that's $10 million to recreate legacy reports that may not be critical for business functions. Legacy reporting requirements

should be evaluated and revised where possible, and addressed in the planning phase to avoid unnecessary costs and potential re-work.

- **Not including consequences when a State does not meet milestones.** The vendor may well be spending several millions of dollars per month at the peak of DDI. If a state does not meet its timelines, the vendor has to absorb losses, which factor into cost proposals. The number of state staff that need to be 'dedicated' to the DDI project phase is dependent on various factors, such as procurement approach, transition strategy and testing complexity. However, past experience supports the need to have staff specifically dedicated to the project.

2.3.4 – MMIS Implementation Timeframes

Core MMIS implementations have ranged from two and a half years to over four years. The wide range of implementation timeframes reflect a spectrum of implementation types, from enterprise architectures to custom built systems and to implementation of mutliple supporting systems and tools. Therefore, many factors contribute to implementation timelines, including availability of state and vendor resources, the amount of testing that takes place before or after implementation, the scope of implementation, and many other complicating variables. Section 2.4 addresses procurement lessons learned, delayed implementations, and best practices to help reduce schedule risks. However, implementations of supporting systems have been proven to be implemented on-schedule in shorter timeframes and can provide a state with a successful start to a large project. For example, implementation of a DSS can take one to two years. In addition, implementation of a Pharmacy Benefits Management System can take about six months to one year. A sample timeline for Colorado, based on industry standards and our recommendation, can be found in Section 7.

2.4 – MMIS Procurement Environment

This provides a depth of information on the procurement issues, risks and innovations that make up the MMIS procurement environment. The following sections address trends that should be further assessed, lessons learned from past procurements and implementations, and finally, procurement best practices.

2.4.1 – Procurement Trends

The presence of new players in the MMIS market is a result of the transition to modular COTS components, which is impacting procurement trends and leading to acquisitions of MMIS services and platforms in ways that are different than typically seen in the past. Some factors considered in procurement strategies and approaches include:

- Movement away from fee-for-service towards pay-for-performance. The pay-for-performance payment model rewards physicians, hospitals, medical groups, and other health care providers for meeting certain performance measures for quality and efficiency. The goal is to provide increased quality in health care while controlling costs. The same philosophy can be applied to vendors in the MMIS market.
- Greater integration of public health and population health management efforts via HIT interoperability. For example, information on chronic conditions or acute illnesses could be shared across public health and health management organizations. In addition, immunization records and well-child visits could also be shared across agencies that track this information.
- Medicaid is a major player in HIT efforts; claims and other Medicaid data is being used to feed health information exchanges.
- States aren't just looking for technical expertise; they also need vendors with experience in the health care environment to fully understand the various procurement challenges from both a political and technical standpoint.

Strategies for procurement are now requiring States to consider how they want to perform the business processes across their Medicaid enterprise which includes entities and organizational partners that are broader than those typically part of a Medicaid program. Interoperability based on standards for data exchange with multiple partners involved in

Medicaid processing is necessary for any modern MMIS. Due to the rapidly changing health care environment, MMIS's have to be flexible and have the ability to address a more expansive view of how the MMIS fit into the mix of an agency's other systems.

2.4.1.1 – Procurement Strategy Innovations

Procurement strategies for replacing MMIS's must consider more than the procurement phase. Considerations during the procurement phase, such as the requirements definition and development process, vendor demonstrations, proposal evaluation and scoring and approach to pricing are all equally important. However, the strategy also should consider post-contractor selection (e.g., post procurement phase) activities, such as contract negotiation and statement of work development, performance standards, dispute resolution, contract remedies, and certification.

The research from other states' procurements revealed a number of innovations as well as improvements on existing, proven procurement strategies that are described here.

Innovations in Requirements Definition and Development

The approach to requirements definition and development is based on a state's strategy and overall objectives for the procurement. Some states so tightly define the requirements for a system that vendors are limited in creativity they can offer in their response. On the other hand, if requirements are not tight enough, states are at risk of not being able to hold the vendor accountable. One way to mitigate this risk is to require vendors to provide metrics that focus on concrete outcomes. In response to this need to maintain balance, some states are adopting the innovations described below.

- **Structure requirements for purchase of a service (or services) rather than a system:** With MITA's definition of business processes, states are considering their needs from a business perspective and developing requirements and procurement documents highlighting desired services, such as claims processing, utilization management, provider enrollment, third party liability and recovery. The advantage of this is that states are not limited to a vendor's systems, and the services can be provided independent of the system solution. This provides more flexibility in responding quickly to changes in how services are delivered.

- **Create requirements for MMIS components separately:** States have been using the idea of putting procurement bids out for components that support the Medicaid enterprise, such as a data warehouse/Decision Support System, MMIS Core Claims Processing system, Health Information Exchange, even a Medicaid eligibility system. This approach allows specialty vendors who may offer only one component to enter the bidding opportunity and therefore increases the states' chance of getting the best solution for each component.

- **Align Requirements with the Medicaid Enterprise Certification Toolkit (MECT) checklists requirements:** The mapping of MMIS requirements to the Certification checklists can be one way to present requirements. One state, South Carolina, has recently included the entire MECT certification checklist into the RFP instead of the more traditional requirements. A statement of objectives, described further below, accompanied this. The Certification checklists and business processes can provide a framework for developing requirements that will serve the Department well for future requirements traceability, and eventual certification. This approach was highly regarded by the state's Regional CMS Office.

- **Publicly release a Procurement Strategy:** The state of South Carolina released its procurement strategy prior to the RFP, and accepted vendor community input on the strategy. Arkansas released a revised strategy after its failed procurement. For South Carolina's strategy, it covered the program's goals for contracting, the timeline for the upcoming procurement and schedule assumptions, strategy for the management, testing, technical, quality assurance and system development lifecycle approach. Not only did this elicit helpful input from the vendor community, but it also served to present the approach in a clear manner that drove the project and development of the RFP.

- **Develop requirements for system transition and deployment phases:** The transition period between legacy and new systems is fraught with risk for the most highly impacted stakeholders in the Medicaid/MMIS enterprise: the providers and clients. Transition periods that are longer, more involved, and phased are becoming more accepted. In California, as part of the plan to develop a new MMIS, the transition approach was designed for the new vendor to first take over the existing system and operation, with plans to deploy the enhanced MMIS in the future. This lengthens the process of

transition, but helps mitigate the risks that come with "big-bang" implementations. CMS appears to be more accepting of overlapping operations between new and old vendors through pilots and component-based implementations. For example, another approach is for states to implement one component at a time, such as the Pharmacy POS. With a phased approach, the Department still needs to be aware of the certification requirements for each component and work with CMS to gain buy-off on each piece throughout the full deployment.

CMS Considerations

CMS has issued new standards and conditions that must be met by the states in order for Medicaid technology investments to be eligible for enhanced funding. In moving to this approach CMS intends to foster better collaboration with states, reduce unnecessary paperwork, and focus on the key elements of success for modern systems implementation. The use of the following seven standards and conditions is intended to bridge the CMS approval process for enhanced funding for Medicaid/MMIS system investments with the new MITA framework and Medicaid Enterprise Certification toolkit.

- Modularity Standard
- MITA Condition
- Industry Standards Condition
- Leverage Condition
- Business Results Condition
- Reporting Condition
- Interoperability Condition

States need to be aware of the implications of these seven standards and conditions as they relate to project planning and implementation. Going forward, addressing the seven standards and conditions and meeting the MITA maturity levels described in the SS-A will be required in order to receive 90% funding for new systems and enhancements. Each of these standards and conditions is assessed by CMS in the planning and funding approval phase, as

well as something CMS will look for in the certification phase. The high level implications of these standards and conditions include:

- The *Modularity Standard* requires states to use a formal system development lifecycle (SDLC) methodology, to consider how and where to use service-oriented architecture (SOA) to support the development of modular components that can provide a more flexible approach to development and ongoing changes and to use business rules that are separate from the core programming. Each of these elements of the Modularity Standard serves to promote flexibility, configurability and interoperability to the MMIS systems.
- The *MITA Condition* requires states to align with the MITA framework for business processes, architecture and data. As part of this, states are to demonstrate progress toward reaching greater maturity in the MITA business areas in accordance with their MITA State Self-Assessments (SS-A) and MITA Roadmaps.
- The *Industry Standards Condition* lays out the industry specific standards mandated at the federal level for MMIS systems and processing, including HIPAA security, privacy and transaction standards, provisions of the Affordable Care Act (ACA) and other federal accessibility and civil rights laws that impact user interface with MMIS screens and services. Going forward, states must acknowledge that standards are continually being updated and must build that into their SDLC model.
- The *Leverage Condition* places a condition for funding on the ability of the state's MMIS to share, leverage and reuse MMIS and Medicaid technologies within and among states. CMS has expressed its commitment to supporting plans that do this, including strongly considering regional or multi-state approaches. In addition to considering alternatives that use regional or multi state approaches, what this also means is that states must demonstrate to CMS where components are available for reuse, which products or components are open source or cloud-based, how customization is minimized and where duplication is being avoided with the solution being funded.
- The *Business Results Condition* is the manner in which states must demonstrate that the processing of all functions within the MMIS enterprise is efficient, accurate and effective. States will be expected to meet certain CMS performance standards and

testing requirements to demonstrate acceptable business results. This is the updated variation on the prior certification model of demonstrating results of test cases that verify the system's compliance with MMIS functional requirements (which will now be MITA business process-based).

- *Reporting Condition* focuses on how the system uses data for oversight, administration, program evaluation and integrity within the Medicaid operation. Stated simply, the solution must provide for accurate and useful reporting that shares performance and operations data about a state's Medicaid program.
- With the *Interoperability Condition* states are required to build in the capacity to seamlessly coordinate and integrate with a state-based or federal Exchange and to provide interoperability with other agencies programs and organizations in the performance of MMIS processing and functions. It is generally recognized that this condition is associated with higher MITA maturity levels that are not reflective of the current state of MMIS enterprises for most states.

It is important to note that some of the information needed to completely address the standards and conditions, such as data standards and the MITA information technology architecture and the federal Exchange, are not in final form or have not been provided by CMS. Additional information regarding the seven standards and conditions can be found in Appendix F.

Innovations in Proposal Evaluation and Scoring

Typically, proposal evaluation for MMIS procurements follows a standard process of technical proposal review, oral demonstrations, cost proposal review, final scoring and possibly a best and final offer process. The innovations described below are intended to distinguish between proposals based on the "desired" features and offerings, and to allow for a process that brings more accuracy to the pricing model.

- **Hold vendor site visits prior to selecting a contractor:** Based on lessons from a recent procurement, the idea of conducting site visits at a customer site, as part of the technical scoring process (e.g., before final scoring and selection), can be a valuable tool for states. This allows states to validate the facts in the proposals in a real-world setting prior to selecting the successful vendor. This applies to fiscal agent evaluation or system

evaluation; the associated site visit activities (i.e. call center observations, staff interviews, issue resolution observation, etc.) vary based on purpose. This activity should be included in the scope of work and appropriately budgeted.

- **Score and negotiate technical proposals before requesting cost proposals:** In North Carolina's recent MMIS procurement, the state used a strategy of requesting technical proposals in response to the solicitation that contained detailed requirements and a statement of objectives, and then evaluated, scored and negotiated with the proposers for the technical (e.g., non-cost) offerings. Following this process, the state then requested cost proposals from the finalists in the technical evaluation. While this process takes more time than the typical evaluation process, it allows for the pricing to be more closely aligned with the technical requirements and therefore, provides a greater degree of confidence in the final contract.

- **Consider allowing proposals to be submitted using tablet devices, such as an IPad:** Public Knowledge administered a questionnaire regarding proposal costs to determine the feasibility, potential cost savings and other efficiency gains by submitting proposals via tablet devices. Therefore, such additional costs won't be factored into vendors' proposals. Many respondants were supportive of electronic proposal submission, citing significant cost and time savings as the primary benefits. In addition, this method allows vendors more time to prepare the solution and response as opposed to time spent on activities required to produce paper copies. However, there were some respondants who indicated their preference for paper copies, citing risk of security breaches, document corruption, evaluator preference and system limitations in terms of supporting tablet devices. Some respondants indicated that requiring fewer paper copies would still result in some cost and time savings. Almost all respondants are very supportive of electronic proposal submission via CDs, DVDs or flash drives and have found that method to be cost effective and low risk. Below is a brief summary of the responses from the questionnaire:

    - The approximate total cost of personnel to prepare the proposal response ranged from $5,000 - $200,000 (for the DSS scenario) and $750,000 - $1,200,000 (for the MMIS scenario).

- The approximate total cost of products needed for the response (i.e., binders, tabs, printing, etc.) ranged from $3,000 - $10,000 (for DSS scenario) and $20,000 - $30,000 (for MMIS scenario).
- The approximate total cost for delivery of the proposal (i.e., boxes, postage, express/overnight shipment, etc.) ranged from $50 - $3,000 (for DSS scenario) and $2,000 - $5,000 (for MMIS scenario). It's difficult to assess an average rate for delivery as the scope and size of proposals and delivery destination create dramatically varied costs.

Innovations in Contract Development and Negotiation

The price of MMIS projects has increased greatly over the past 10 years. The higher price tag necessitates greater contract monitoring and assurances to protect the State, as well as the vendor, through clear identification of how contract disputes will be handled, how and when remedies are assessed, and what performance standards are in place to hold the vendor accountable. While the following points are not original or necessarily innovative, they are presented based on research on recent procurements from other states.

- **Address dispute resolution as part of terms and conditions:** At the state and CMS level, there is agreement that anticipating contract disputes and planning how to address them is a good idea. From a state's perspective, if there are ways to lower the level of escalation involved in contract disputes through negotiation, or other means that avoid lawsuits, that is viewed as a win for the state and vendor. Presenting this in a clear manner in the solicitation documents lets the vendors know how dispute resolution will be handled.
- **Ensure Remedies are included in contract:** The idea of contract remedies and liquidated damages is not new from a contract perspective, but to the extent the Department can identify how these will be used, how they will be assessed, and when they will be used, helps in aligning expectations regarding performance standards in the RFP and solicitation documents. Liquidated damages should only be issued to offset a cost incurred by the State to perform activities that the vendor could not. Remedies should be specified to address other issues.

There are several approaches to contract monitoring, depending on how it is defined. Based on our independent research, internal knowledge and discussions with third parties, the following approaches could be considered.

- **Contract Administration**: In this case, the contract monitor's responsibility is to ensure that the general requirements of the contract are being met by both parties, as well as handling the administrative contract items (invoices, change orders, etc.). This work could probably be performed with 1-3 people depending on experience and knowledge.

- **Independent Validation and Verification (IV &V):** In this case, the purpose of IV&V is typically to monitor the project without becoming a key actor in the project. If IV&V becomes part of the project itself, it is easy to lose sight of monitoring others, and IV & V actors develop a vested interest in their own viewpoints and deliverables. This often results in a loss of independence. As a rough rule of thumb, IV&V should be 5-10% of the development cost, depending on the scope of that work. That cost could fluctuate, depending on whether the scope includes continuous oversight or period reviews/inspections.

- **Program Management Office (PMO):** In this case, it is difficult to complete a full MMIS DDI with less than a 20-person minimum (full time) team. Coverage for the typical specialties (claims, provider, etc.) requires many team members, with additional requirements for project management, technical, and test staff. If properly managed, most PMOs run smoothly with a 30-40 full-time equivalent team. The specific size and make-up of the Colorado PMO cannot be recommended until the procurement strategy is finalized and the RFP is developed, as various factors will need to be considered (i.e. number of RFPs, implementation timelines, transition strategy, state IT staffing contracts, etc.). The mix of Department, individual consultant, and consulting company resources should be based on the available resources with additional resources acquired to round out the team. In many states, the team is comprised largely of consultants (hired outside of the MMIS RFP process), enhanced by the state. The best solution is often driven by existing resources, the difficulty of hiring individual consultants (i.e. State IT staffing contracts, etc.), and the procurement requirements to hire a vendor.

2.4.1.2 – Objectives-Based Procurement

The use of objectives, principles and desired outcomes that define the "what" of a procurement, instead of defining details of the process for a vendor to follow (the "how") is an Objectives-Based approach. This approach requires the Department to define high-level objectives and aligns vendor performance requirements with strong performance standards and accountability language. The use of a Statement of Objectives (SOO) is what drives this

approach. A SOO can be used in a traditional RFP model, where technical, business and operational requirements are also included.

Table 8 on the following page shows some advantages and disadvantages of this approach to procurement.

Table 8 – Advantages and Disadvantages of Objectives Based Procurement

Advantages	Disadvantages
May generate increased vendor interest due to allowing more creativity in response	More upfront difficulty in building the RFP requirements based on objectives
If the Department knows what it wants and can clearly define through objectives and principles, this is a very advantageous approach that can bring in proposals with a wide variety of market solutions	Evaluation can be more difficult and evaluation methodology needs to be fully considered in advance
Vendor is selected based on their approach to meeting State's objectives and drives the direction of the project	May require more negotiation at the contracting stage than typical requirements-based RFP (e.g., need to balance contract risk and negotiation more carefully, so that vendors are managing what they can control)
Responsibility for success and failure more weighted toward the vendor as compared to more traditional RFP where success/failure is more weighted toward the Department/acquirer	This is not a substitute for knowing what the Department wants (e.g., have to have the objectives)
Can develop objectives for contract, financial, management, technical, life-cycle, and business (system and operations) areas	

2.4.1.3 – 'Best Value' Procurement Model

The Best Value Business Model was developed by a group of researchers and educators (Performance Based Studies Research Group) at Arizona State University. It is based on leadership principles and drives accountability and efficiency through the use of measurement.

The best value procurement model is designed to increase project performance and transform organizations. In this model, the evaluation of solicited proposals includes a combination of quality, price, past performance, and other necessary project-specific elements. The expected result of these evaluating factors is an expert vendor, a thoroughly pre-planned project, minimized risk, resource optimization, and accurate measurements of performance. Advocates of best value procurement argue that the use of this method filters bid vendors leading to a high performance, expert vendor who minimizes project risks and performance.

The best value procurement model is typically comprised of three separate phases. The first phase is the identification of the potential best value. During this phase, a vendor's past performance, ability to minimize risk, and costs are provided to the client in a simple, brief, and anonymous manner. By having information presented to the client in this manner, the client can focus on the specific needs of the project and the ability of the vendor to truly meet these needs.

At the conclusion of the first phase, a best value contender moves to a second phase of pre-contract pre-planning and quality control. During this phase, a detailed project plan that minimizes uncontrolled risk is developed. Additionally, a project schedule is developed. Together these documents are included in the contract as part of the risk management plan. A contract is then signed and work begins.

Phase three, management by risk minimization, is executed until project completion. During this phase, the vendor provides a weekly risk report. The report documents risks impacting cost, schedule, and client expectations. The documenting of these risks is designed to force the vendor to devise a mitigation plan regarding the risk, taking into consideration the life of the project. At the completion of the project, the client performs an evaluation of the vendor. This evaluation is then provided as a past performance indicator for the vendor.

A majority of best value procurements have been in construction, but the process has been implemented in non-construction areas including food service, information technology, health insurance, and media advertisement. Our research did not find an example of a MMIS procurement using a strictly Best Value approach. The advantages and disadvantages of this model are listed in Table 9.

Table 9 – Value-Based Procurement Advantages and Disadvantages

Advantages	Disadvantages
Bids are presented in a brief, specific format	Detailed proposals will not be provided to the client
Awards projects based on performance, quality, and price	Lowest-cost vendor may not be awarded the contract
Vendor is selected based on expertise and drives the direction of the project	Shifting expertise to the vendor results in reduced client control
Risk is placed with the vendor rather than the client	Some of the client decision-making is removed
Success using best value procurement has been primarily in construction	The technique has not be used regularly outside construction and is not standard
Vendor creates a contract that minimizes risk	Client control of the contract is minimized to give vendor more risk control

2.4.2 – Procurement Lessons Learned & Obstacles

Approximately half of the states researched are in the procurement phase or have recently completed procurements and are in the development process for their MMIS. The following sections present lessons and insights from these projects.

2.4.2.1 – Lessons from Recent Procurements

Observations and insights that can serve as lessons from recent procurements in the more than 15 states recently engaged in MMIS procurement projects include:

- **Working Together**: States are working together and sharing lessons learned when working with the same vendor. For example, Alabama joined together with other states to share information related to HP's Interchange solution. Also, North Dakota and New Hampshire have been engaged in regular sharing of information and leveraging resources since both states, along with others, are developing and implementing ACS' Health Enterprise System.
- **Project Management/Vendor Resources:** Maine's most fundamental lesson learned was the requirement for a strong, competent Project Management Team, both at the state and at the MMIS Vendor. Both the structure and size of the teams will likely vary

based on procurement approach, testing complexity, and transition strategy. At a minimum, there should be a dedicated Project Manager at the State and at each contracted vendor. The state recognized, based on its recent past, that it needed industry experience and secured consultants with MMIS Project Management expertise to augment the state management team. They were hired early in the project and in place to help with the procurement process. The majority of all other states that we had direct contact with re-iterated the importance of a solid project governance, with a strong Project Management team being a key factor. In addition, several states indicated the importance of specifying the qualification and location requirements of the vendor project team(s). Specifically, Alaska learned this lesson the 'hard' way during it's last implementation and is now working closely with ACS to ensure the consistent availability of the right vendor resources.

- **Schedule Evaluation/Staffing:** The time needed to design, develop and implement new MMIS systems is historically under-estimated by states and vendors. The pressures that influence the project schedule are many and are often out of control of the project management team. However, knowing that the recent schedules have been underestimated by as much as 18-36 months should help future states plan for and devise their project timeline and development strategy.

  The State of Washington built into their schedule a 3-month planning period, but believe that it would have been better to have 6 to 8 months for that initial planning phase, once the new vendor was selected.

  In Washington, the project team stated that they believe they would have been better served by a longer ramp-up or planning period. The team allocated three months for the planning phase, but realized that eight months would have been more ideal. The initial estimated DDI for this implementation was thirty months; the actual DDI was sixty-four months.

  Kansas also shared a key lesson learned from their most recent implementation. The project plan should have included adequate time and resources for the effort required by non-system staff to load, test, and manage data during the transition. Connecticut re-iterated this as a result of their most recent implementation. In addition, they also stressed the importance of a realistic work plan that includes time for adequate end-to-end and volume testing.

Alabama also shared a key lesson regarding schedule estimation. They did not allow enough time for parallel testing between the old and the new system. In addition, changes required as a result of amendments during DDI resulted in both additional costs and parallel testing requirements.

Although Utah is currently planning for their upcoming procurement, they shared some insight regarding lessons learned from their previous implementation. One of the key factors for future implementations will be to adequately staff the project and engage all of the project stakeholders (i.e. Department leadership, staff, interfacing system stakeholders, Office of Information Technology, etc.) early in the project. This will include frequent, consistent communication to ensure internal support and buy-in throughout all phases of the project.

Connecticut's 'transfer and modify' procurement strategy required minimal effort and risk, but they still underestimated the required state resources and project schedule. Going forward, they would allocate more State resources to oversee contractor activity and more time to complete end-to-end and volume testing.

System and user acceptance testing are often shortchanged in compressed schedules. In many states, even though the system-testing phase was originally scheduled for three months, testing took twelve months or longer.

- **Contracting Approach**: With the trend towards separating components, such as the DSS, POS, MMIS, and document management system, the contract management for the project and vendor contract structure needs to be considered. The State of Idaho awarded four contracts to three different vendors in its most recent MMIS project. However, Idaho also indicated that it has been very challenging to manage multiple contracts, especially if one vendor is awarded the systems integrator contract, but not incentivized for the roles and responsibilities. The State of Iowa contracted for multiple vendors in its Iowa Medicaid Enterprise approach and did assign the responsibility of "integrator" to one vendor, the core claims processing vendor. Idaho did the same thing with mixed results.
- **Implementation Approach:** Many states have found that separating the data warehouse/Decision Support System (DW/DSS) component from the MMIS was

beneficial. The separation allowed the DW/DSS to be implemented and put into operation prior to the completion of the MMIS. Historically MMIS systems are not implemented on time, and the DW/DSS can usually be implemented first, unless the MMIS architecture and data model are not fully defined. This offers states the benefit of having a functioning data analytics system as the MMIS is being developed, and can even provide value to the MMIS development vendor in creating the service delivery platform.

In Washington State's MMIS development project, the project team stated that, in retrospect, they would have preferred not constructing the DW/DSS in parallel with the MMIS. The data model for the data warehouse was impacted by the final MMIS architecture and it was not an efficient approach to develop them together. However, the PBM component was implemented eighteen months earlier than the base MMIS, which gave the State an early win on some implementation tasks. In addition, they did extensive planning for operations, organizational change management and provider outreach. Part of this planning included a mock cutover to better prepare for implementation. As a result, they did not need to issue any interim payments to providers but instead were able to process all claim types from day one of implementation.

Based on South Carolina's procurement, vendors will be accountable for five 'phases' of work. They will allocate three months to the Discovery phase; the Replacement/DDI phase will have some overlap with the Operations phase, followed by the Turnover and Hosting phases. They have not yet finalized the timeframes for all phases.

Oregon re-iterated the importance of minimizing modifications to the base system, especially if the strategy is a 'transfer and modify'. They stressed the importance of only modifying the base system if it absolutely won't work for the business. That was initially a driver for their project, but the Executive team continued to back down and did not provide strong enforcement. As a result, the project timeline was extended three times, and CMS denied their last extension request. The other major factor that led to extensions was unrealistic expectations regarding feasible DDI timelines. Although many vendors claim to be able to implement within two years, this has not yet been proven in the current marketplace.

Although Ohio's implementation went smoother than anticipated, they continue to find issues and system bugs. The biggest area in which they have concerns with implementation is that business transformation was happening faster than system evolvement. For example, HIT and HIPAA related changes were occurring faster than they could make the required modifications. In addition, their Case Management system no longer fit their needs. They also indicated that the transfer system wasn't well documented in relation to their business rules. In addition, timeframes were not realistic. They were only given ten days to review an overwhelming number of pages of documentation. The Joint Application Design sessions required significant resource time with quick turnarounds for reviews. This made it more difficult to ensure that the design was well documented and understood prior to developing the system.

Although New Jersey has not yet released the RFP for their MMIS procurement, they were able to provide some feedback regarding their strategy and lessons learned thus far. They are heavily emphasizing MITA and the CMS conditions and standards that will drive certification. CMS certification is one of their top drivers, so they will use those checklists as a basis and augment their RFP with state specific requirements. In addition, they want a process-driven solution with an agile system. New Jersey has a lot of managed care, so the MMIS must do more than just process claims. A major guiding principle for New Jersey is they would rather configure a system than build a system. They also held vendor demonstrations, which was a key factor to understanding system models and functionality and to developing their strategy.

Another state to emphasize CMS certification requirements as part of their procurement is Alabama. Alabama stressed the importance of beginning the project with the 'end in mind'. Alabama focused on CMS certification throughout the process, with the goal of certification as soon a possible. All change requests were carefully evaluated, and deferred if the team determined that certification would be impacted as a result. The team partnered with CMS throughout the whole process to ensure that there were no 'surprises'. A continual 'lesson learned' is to deal with issues as they arise, rather than allowing them to escalate. This includes carefully monitoring the vendor and taking initiative to ensure accountability (on both sides).

Michigan's most recent implementation was deemed successful and the system was certified by CMS in August of 2011. The primary factor driving their strategy was obtaining matching Federal funds. However, the overarching goals of achieving and maintaining industry best practice and showing marked cost savings over time were also considered. Migration to the current architecture has brought the technology and business infrastructure to a MITA level 2.0, with the capabilities to realize levels 3.0 and 4.0 in the future. Among the many benefits of their new system, they cited interoperability as one of the key advantages. Business areas can now communicate and interact in ways never before possible, resulting in both new efficiencies and cost savings. As a result of their experience, they provided some valuable insight regarding implementation lessons learned. The following list contains some of the key lessons that were shared:

- Maintain consistent, constant involvement of State resources (in both IT and business arenas) in conjunction with contractors through the design and testing phases, to ensure an effective implementation.
- Seek ways to leverage federal match dollars against the implementation (to include data warehousing, reporting functions and other initiatives).
- Keep internal resources and stakeholders involved and informed as decisions are made and seek out key leadership within the organization to shepherd the process at all stages.
- Understand both the financial and resource commitment needed for the transition.

2.4.2.2 – Cancelled Procurements

Many lessons can be learned from recent cancelled procurements. In general, cancelled procurements were due to several factors, such as unclear requirements, project management weaknesses, and inability of the state to negotiate the contract terms and conditions. The states researched that had cancelled procurements include:

- **West Virginia** recently cancelled its procurement, which was costly to both the State and vendors. Technical proposals were received from ACS, HP Enterprise Services, and

Molina Medicaid Solutions, and proposal evaluations were in progress at the time of the procurement cancellation. Prior to releasing the RFP, West Virginia's Department of Health and Human Resources (DHHR), Bureau for Medical Services (BMS) held MMIS vendor presentations in both January 2009 and September 2010. On September 1st, 2011, WV DHHR released the RFP cancellation notice, citing that the withdrawal was necessary due to technical flaws in the specifications. The state felt it was at risk of having a vendor and solution that would not meet its needs with specifications that were not adequately defined. DHHR did not provide any additional information regarding specific areas of concern surrounding the requirements. The cancellation notice also stated that the DHHR is revising specifications and that the procurement will be re-bid later this year. DHHR currently contracts with Molina Information Systems for MMIS services.

- **Arkansas** recently cancelled its procurement for a replacement MMIS. The procurement included more than 20 RFP's that were issued based on specifications for multiple components for the core MMIS, professional services and other supporting products for the Medicaid operation. The lack of strong project management on the state side to properly manage the more than 20 contracts was one reason cited for this cancelled procurement. Based on these issues, the state is planning a new procurement that will involve fewer RFPs and a stronger project management approach using a Project Management Office.
- **South Dakota** cancelled its vendor contract in October 2010, after spending an estimated $49.7 million on DDI since July of 2008. The relationship between the State and the vendor wasn't working, so the Department of Social Services cancelled the contract after two years of disputes with the vendor.[8] The MMIS still remains inoperable, but the State said they would take what they had invested and finish the implementation themselves. CMS may be intervening to help get the system implemented, which could cost in excess of $80 million to complete. The RFP included approximately 3,200 system replacement requirements.

[8] Facebook, 'The Reinvention of MMIS Procurements', INPUT, 22 July 2011

- **Montana** had a prior cancelled procurement before its current successful procurement. In that procurement, which was cancelled after proposals were received and being evaluated, the contract negotiation was unsuccessful. The state re-released the same RFP, with the innovation of ipad submissions. This allowed the state to continue with the same procurement already approved by CMS and generated renewed vendor interest.
- **Vermont** cancelled bids on one of its biggest contracts in August, 2011. The Agency of Human Services abruptly withdrew the request for proposal for the multi-million Medicaid system because it didn't address the state's new single-payor health care reform plan. Officials realized that the new single-payor health care plan would significantly alter the design of the complex data system. The federal government is also coming out with new recommendations under the Affordable Care Act, which impacted initial requirements. A formal RFP for the 10-year contract was released in February 2011; the contract for the Medicaid Enterprise Solution was originally supposed to be awarded in July 2011. Instead, the four bidders being considered for the contract received notice that the RFP had been pulled. The Agency is re-evaluating their Information Technology strategy, and has not set a date for reissuing the RFP. Note that Vermont was not included in the initial list of states researched, and is not reflected in those statisitcs presented throughout the report.
- **Nebraska** terminated their $40 - $50 million contract with the vendor hired to develop a new system to manage Medicaid. A contract for system development services was awarded with federal approval in May 2008 and was subsequently terminated in July 2009, citing that the vendor 'did not have the capacity to deliver the system they proposed'.[9] The State monitored the contract deliverables for a number of months and was working closely with the vendor to identify and resolve concerns. However, they concluded that it was in the best interest of the State to terminate the contract.[10] Nebraska is currently doing a MITA SS-A, and plans to reprocure within the next year.

[9] http://journalstar.com/news/local/article_1b90dd1e-7e36-11de-83a2-001cc4c002e0.html
[10] http://journalstar.com/news/local/article_1b90dd1e-7e36-11de-83a2-001cc4c002e0.html

2.4.2.3 – Delayed Implementations

The research clearly revealed that states underestimate project schedules and time needed for implementation. Every new MMIS development project (even transfer systems) in recent years has come in later than originally scheduled. Some significant delays related to new system development are currently impacting the states of North Dakota, New Hampshire, and Alaska. Historical evidence for implementations taking longer than anticipated include the following:

- In Maine, the project was originally estimated at 24 months, but took 30 months for their new system.
- In Washington the state's estimate of 30 months ended up being more than 60 months, which more than doubled their project schedule.
- The state of Wisconsin experienced a similar pattern with the original estimate of 24 months becoming 46 months before the system was implemented.
- The state of California has taken this historical delay data into consideration with the development of a 69-month schedule for takeover to implementation of the enhanced system.

2.4.2.4 – Procurement Risk Mitigation

Based on the challenges and issues faced by other states' experiences, there are some strategies and mitigation approaches that can be considered for Colorado's project. They are included in Table 10.

Table 10 – Procurement Obstacle Mitigation

Procurement Risk	Mitigation Approach
Adequately defining requirements to elicit the best solution for your state	• Develop procurement strategy that fully addresses objectives and desired outcomes for requirements through implementation phases. • Define requirements in alignment with MITA business processes.
Project schedule takes longer than anticipated	• Based on lessons learned from recent projects, build in enough time for planning, testing, transition and pilot to ensure a successful project. • Consider component-based or modular implementation approach to allow for phased implementation (iterative approach). • Accomplish early "wins" by implementing PBM or other components early in the schedule.
Receiving accurate cost proposals	• Consider a process to negotiate and refine technical requirements with vendors prior to submission of cost proposals.
Competing for vendor interest, due to high number of states engaged in MMIS projects	• Develop RFP that allows for creativity in responses through clear statement of project objectives and allow vendors to bid creative solutions to meet state requirements, by defining the "what" is needed and desired, not the "how" (leave that up to vendors). • Consider separation of components such as DW/DSS, Pharmacy POS, others to open the opportunity to as many vendors as possible.

2.5 – MMIS Enhancements for Input to Alternatives Analysis and Procurement

Below are the MMIS enhancements that should be assessed and prioritized for the alternatives analysis process, options selection, procurement strategy, and ultimately RFP requirements. These enhancements, as well as other enhancements, are discussed in further detail in section 3 – MITA Roadmap and 6 – MMIS Use Case of this report.

- **Enhance CMBS interface capabilities.** Currently, CBMS files take about 1.5 days for processing into the MMIS. The time should be reduced to a few hours. In addition, files sent from CBMS may go directly into the MMIS, instead of going through the State

mainframe as an interim step. In addition, there is no communication loop that supports reconciliation of eligibility data between the CBMS and MMIS. Edits in the MMIS are not shared with the CBMS (and then to TRAILS) causing downstream data integrity issues that impact everything from claims payment to client/applicant communication to population outreach. The MMIS should push changes to CBMS as well.

- **Provide Single Sign-On functionality.** A single sign-on would reduce the number of logins a provider and/or other staff would have to use in order to use the state's systems. This functionality may come through one or more contracts depending on the MMIS option selected by stakeholders. In addition, OIT is currently exploring single sign-on capabilities for various state systems.
- **Bring LTC Prior Authorizations, Screenings, and Claims into MMIS or DSS**. Discussions with staff around care management indicate that staffing levels are too low to handle the workload. There is no interface between the claims system, prior authorizations, eligibility system and the case management system. Department staff are forced to pull data from multiple systems in order to determine the appropriate and accurate level of care for clients.
- **Process Medicaid payments through MMIS.** Consider folding in claims payments through the MMIS instead of routing claims payments through COFRS. Creating a centralized data source for all information related to claims, clients, providers that include tracking all historical actions, attaching pertinent information, including information regarding recoveries, settlements, TPL, Drug Rebate, etc. to provide the Department with access to comprehensive information to process claims appropriately and enhance its ability to avoid unnecessary costs. However, all financial transactions must eventually feed into COFRS.
- **Enhance Web Portal Features**. Colorado's MMIS will need to include a Web Portal, or interface with the current Web Portal, to provide enhanced features to providers, clients, and even staff. The Department will be able to improve electronic communication and outreach, reduce the amount of time to answer inquiries for providers and clients, and update information on benefits and claims management. Colorado's MMIS, DSS and data warehouse will need to create centralized access to data

and reporting in order to take advantage of electronic data that will help streamline and standardize provider and client-related processes.

- **Purchase Data Warehouse and Business Intelligence Software.** Data can be maintained in a central location to allow for decision support and business intelligence functionality. Using a centralized data source allows for creation of additional interfaces, including data warehouse interfaces with vital statistics, public health and environment, and the Internal Revenue Service. It is also equally important to consider a flexible reporting solution that will allow designated Department staff the ability to create ad hoc data queries to support those processes that cannot be automated immediately or must remain manual.
- **Automate manual processes.** Colorado's MMIS will need to be flexible and easily configurable to allow Department staff and its Fiscal Agent to easily and quickly implement changes that will assist in automating many operational business processes.

3 – MMIS MITA Roadmap Elements

3.1 – Overview of MITA Roadmap

The MITA Roadmap is used to assist states in developing a plan to evolve their current business capability level to the "To-Be" capability level through the achievement of identified transition goals. The adoption of the architectures included in MITA can be overwhelming to a state organization. The Roadmap communicates how the Department can adopt the precepts of MITA as they plan and implement initiatives. These initiatives may originate at the state level or be driven by federal legislation and guidance. As the Department evaluates initiatives it will be clear how to leverage the business capabilities matrices from MITA to identify business and system requirements that will move Colorado along the continuum of the maturity model.

Between September 2011 and January 2012, Public Knowledge worked with the Department to identify and validate Transition Goals that were used to develop Colorado's MITA Roadmap. These goals were a result of system and business process enhancement themes that emerged from the MITA "As Is" and "To Be" sessions. These transition goals demonstrate the path that the Department would like to take in order to move the organization from its current business capability level to an improved level of business maturity. Information gathered through the MMIS research, in conjunction with the MITA Roadmap goals will provide a listing of critical functionality for the new MMIS. This functionality will improve the way the MMIS supports the Department's health care programs including Medicaid, CHP+, Managed Care, and Long-Term Care. Key components that should be considered in procurement of the new MMIS include workflow management application, enhanced web portal, and a configurable MMIS.

3.2 – Transition Goals Identified in the MITA Roadmap

Public Knowledge and the Department have identified 24 transition goals related to the MITA Business Areas. Transition goals are a consolidated view of the "To Be" items identified for each of the business areas/processes. The transition goals are the roadmap for the Department. They describe how the Colorado Medicaid program will transition to their

desired MITA maturity level over the next three to five years. The transition goals are listed and defined below. In the Colorado MITA SS-A, the transition goals have been mapped to the applicable business processes.

- **Ability to accept and store electronic attachments.** The Department expects that the new MMIS will support the ability to accept and store attachments submitted electronically. Attachments can include claim attachments, client documentation that may be produced by a different system (e.g., notices), and provider documentation. Attachments would be indexed with the appropriate claim, client, and provider for retrieval as needed.
- **Ability to create policy and utilization modeling and forecasting.** The Department expects that a separate environment mirroring the production environment of the MMIS could be used to support "what if" scenario modeling. The environment will also be separate from the test environment used to validate changes made to the system will perform as designed. Department staff would be able to determine the impact of a policy or other change (e.g., change in payment methodology) on outcomes. The environment can also be used to forecast changes in utilization and payments.
- **Ability to support bi-directional interfaces.** The Department desires interfaces to support passing information back and forth between systems where appropriate. One example is a bi-directional interface between the MMIS and CBMS to support the correction of errors identified when loading eligibility data into the MMIS. A bi-directional interface would allow the MMIS to pass back information to support updates to the CBMS system so that both systems are in sync with respect to client eligibility. A bi-directional interface will be necessary to develop an automated process for reconciliation between CBMS and the MMIS.
- **Audit trail and access to history.** The Department wants a new MMIS that supports an online, human-readable audit trail. Access to changes to data within the MMIS allows the Department to understand the history of data changes on a record. The online, human-readable audit trail could identify the effective and termination date for the data; identify who made the changes (e.g., individual or automated process); and the value of the data element for the identified data range.

- **Automate Clearance process.** The Department currently has many documents and forms that must be routed to applicable stakeholders for review and approval, e.g., Clearance. This process is currently a completely manual process, where the Clearance documents are manually delivered to each individual stakeholder. The Department desires a process where these Clearance documents can be automatically routed to the appropriate stakeholders.

- **Automate reconciliation process.** The Department desires the ability to synchronize data between the MMIS and Colorado Financial Reporting System (COFRS). This will allow for automated reconciliation of payment data with claims data for reporting and auditing purposes.

- **Automate workflow management.** The Department desires to automate processes, where possible. There are automated solutions that support the establishment of work queues allowing in process documents to flow from one worker's queue to another.

- **Centralize access to data.** The Department desires the ability to access real-time data for clients, providers, and benefit plan(s) for many programs including Foster Care, Medicaid, CHP+ and Long-Term Care. Access should be controlled to allow staff to have appropriate access to data to support their responsibilities. The State has several initiatives that may provide the tools to support achievement of this transition goal.

- **Electronic client management.** The Department desires to move to electronic solutions to improve it's ability to manage client information and client related processes. This transition goal includes the creation of an online, electronic client application through a State web portal. The data from the application would flow through to the appropriate systems to support determination of eligibility as well as benefit plan assignment. This goal also addresses a desire the move to electronic notifications to clients.

- **Electronic financial management.** The Department desires to improve financial management processes by moving to more electronic processing. The Department wants to leverage information available electronically to support more efficient budgeting and financial forecasting. Electronic Financial Management will leverage solutions used to

support centralized data access and policy/utilization modeling. The Department also desires to move to an improved payment system solution that can better support Medicaid and related programs in processing payments and other financial transactions.

- **Electronic provider management.** The Department desires the implementation of an online, electronic provider enrollment application. The application would collect required information to support a decision for the provider to supply Medicaid or other programs' services. The online application would allow the attachment of supporting documentation to allow efficient decision-making. The solution would leverage an automated workflow so data and documentation could be routed to appropriate units responsible for decisions on provider enrollment applications. In addition, providers could use an online portal to submit updates to their information; for example address changes or updated licensing information.

- **Electronic tracking of audit actions.** The Department desires a solution that supports electronic capture and tracking of claims and provider audits. The Department plans to use this information to improve resolution of audit findings, and efficiency of the audit process.

- **Electronic tracking of performance measures.** The Department desires a solution that supports the capture and tracking over time of specific performance measures. The Department plans to use this information to improve management of contracts with entities that provide services such as a MMIS Fiscal Agent.

- **Electronic utilization tracking and forecasting.** The Department desires to track utilization trends to support improved decision-making on where to allocate program resources. The information collected and tracked over time will support forecasting allowing the Department to make more timely changes to policy and resources to improve health care and financial outcomes. This goal will leverage solutions used to achieve centralized data access and policy/utilization modeling transition goals.

- **Improve, standardize, and automate electronic communication capabilities.** The Department desires to improve and standardize communications with clients, providers, and other agencies. The standardization of communications would allow the Department

to move to electronic options for communications including a web portal and electronic messaging. In addition, standardization should support the ability to provide messaging in multi-language and multi-literate formats. These capabilities may result in timely communications that would lead to improved outcomes.

- **Improve electronic care management.** The Department desires the improvement of their current Benefits Utilization System (BUS), or implementation of a new online, electronic case management system. Case managers anticipate using the system to build and maintain treatment plans, and the system could interface with MMIS to verify appropriate benefit coverage. The solution could leverage an automated workflow so data and documentation could be routed to appropriate units responsible for decisions on case management activities. In addition, case manages could access benefit and eligibility information provided in the MMIS and CBMS.

- **Improve electronic contractor management.** The Department desires an electronic solution that supports automation of processes related to contractor management. Contractors include those entities that provide services to the Department or to clients and providers on behalf of the Department. Leveraging a solution that supports the tracking of performance measures is only one aspect. The solution should also provide the information necessary for the Department to accurately process payments to contractors.

- **Improve internal knowledge management process.** The Department would like to improve communication and coordination intra-agency, as well as with external agencies. Increasing standardization of communication methods would allow better coordination across agencies that own a portion of certain processes. Creating access to appropriate information will enhance the Department's ability to make informed decisions. This will be both a technological and cultural shift for the Department, e.g., dissemination of information regarding State Plan Amendments, policy changes, or system enhancements.

- **Improve reporting capabilities.** The Department desires a solution that provides robust reporting options. The solution would leverage the solution used to provide centralized access to data to improve reporting results. The Department expects that a solution would provide flexible reporting tools that provide a variety graphical and data

formats. The variety of formats would allow the Department to communicate data in a view appropriate for each audience. The solution would also provide options to automate reporting including the ability of users to designate reports for generation at specific intervals and the ability to set parameters for ad hoc reports. This also includes the ability to search on user defined data elements.

- **Increase staffing.** Some areas of the Colorado Medicaid program that have indicated that they desire increased staffing in order to become more efficient. Automation will help in some program areas, but others, such as Policy and Contract Administration, will continue to have manual operations, and will require increased staff to improve efficiencies. Although this seems contradictory to efficiencies created by increased automation, this is a result of direct feedback from Department staff and relates to efficiency improvements for manual operations.

- **Reduce lag between determination and posting data to MMIS.** The Department desires solutions that support more timely movement of eligibility data between the CBMS and MMIS. Reduction in the time to move data from CBMS to the MMIS will result in more timely care to clients. In addition, the data would need to be available sooner to systems receiving this data from the MMIS including the PDCS.

- **Standardize processes.** The Department desires to standardize processes to support more efficient results. Standardized processes result in more predictable decisions removing, where appropriate, the subjectivity in decision-making. Standardization would allow better coordination across agencies that own a portion of certain processes. Examples of processes that could be standardized are the grievance and appeals process and the contracting process.

- **Standardize transactions.** The Department desires to increase the use of standard transactions including national electronic transactions' standards. The Department would like to take advantage of enhanced validation available for standard electronic transactions to improve efficiency in the processing of transactions. Improved validation means transactions will be rejected for missing required information prior to processing, reducing the amount of transactions that have to be processed through the MMIS.

- **System flexibility.** The Department desires an automated solution that is easily and quickly configurable based on changing business requirements. The system would focus on configuration changes rather than custom coding of business requirements. The system vendor will need to be intimately familiar with its solution in order to make recommendations to best incorporate business requirement changes. This goal may also require an evaluation of the process to communicate the Department's requirements for a change. Making this process more efficient in achieving Department approval for changes will reduce the amount of time to get business requirements implemented in the system and increase accuracy of system transactions. Examples include the ability to make payments through benefit plans/services created or the ability to add new data fields to the system that can drive workflow and/or reporting capabilities.

3.3 – MITA Road Map Lessons Learned

As a result of facilitating the development of the Colorado MITA Roadmap, we have identified several significant lessons learned. In addition, we have incorporated our research findings from MITA progression in other states. The MITA framework has broadened the definition of the MMIS, which is key consideration for understanding the obstacles that states face as they strive to progress their MITA maturity levels. In essence, it's a paradigm shift to transform the Medicaid Enterprise through the use of technology.

In general, state MITA maturity levels are relatively low. The majority of states included in our research that provided MITA information are primarily 1s and 2s on the Business Capability Matrix. There are also many states that did not even know their MITA maturity levels and/or have not recently completed a MITA SS-A. Findings from the Colorado "As Is" MITA SS-A indicate that most business processes are 1s and 2s on the Business Capability Matrix. However, MITA maturity progression appears to consistently be a priority among states. Many states are currently undergoing MITA State Self-Assessments (SS-A) or are in the planning phases of conducting an

Factors influencing MITA Progression

1. Availability of technology
2. Funding availability
3. Staff availability
4. Understanding of MITA concepts
5. Organizational silos
6. Legislative changes and mandates
7. Resistance to consolidation of parallel business practices from various programs
8. Resistance to business process standardization

assessment. Public Knowledge was able to obtain recent MITA SS-A reports from several states, but MITA status information, in general, was limited.

Our findings also indicate that many states are still struggling to adopt the MITA approach. Although research suggests that states support the MITA concept, there are some factors that seem to hinder states' ability to embrace it. As a result, many states fall back on traditional strategies that focus on cost, benefit, schedule and risk.

Also evident are some other influences that will impact the pace and priorities associated with adoption of the MITA framework. Those are outlined below:

- **Many key systems are changing (DSS, CMBS, Web Portal, etc.) or forecasted to change in the near future.** New systems and/or ongoing enhancements will impact many business processes. It will be important to position current and new software to facilitate ongoing implementation of technology improvements.
- **Performance measurements are increasingly emphasized.** As performance and incentive-based contracts and solutions become more prevalent, stakeholders can expect to see an increased focus on measurable quality improvement, program transparency and accountability.
- **Evolving federal and state legislation and mandates.** Various state and federal health care reform plans will significantly impact many program operations and may require modifications to MITA roadmaps.

In conclusion, it's evident that MITA adoption among states is still evolving. Ongoing MITA maturity progression is influenced by many factors, and the MITA Roadmap will need to be re-evaluated periodically and modified to adapt accordingly.

4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems

This section contains an overview of initiatives and systems that may affect the MMIS procurement, including Statewide IT standards, Health Information Technology (HIT), Health Information Exchange (HIE), CBMS, the Web Portal, and other interfacing systems. Interface and system needs described below are only high-level and will be addressed in further detail through procurement requirements sessions. Additional information regarding system interfaces can be found in Appendix C, and initiative requirements can be found in Appendix D.

Table 11 – System and Initiative Considerations for MMIS Procurement

System/Initiative	High-level description and Recent Activities	Considerations for Procurement and Alternatives Analysis Process
Interfacing Systems and Data Sources		
CBMS (Interfacing System)	CBMS is Colorado's Benefit Management System. Medicaid eligibility information is currently obtained through batch files from CBMS, through the State Mainframe, to the MMIS. The interface performs several routine batch runs to perform 13 main functions, including[11]: • Creation of the weekly TPL Resource file • Sending the weekly TPL Resource file • Creation of the weekly TPL Carrier file • Sending the weekly TPL Carrier file • Receipt of the Provider Demographics file • Update of the individual MMIS Provider table • Creation of the Provider Demographics Outcome Report • Sending the Provider Demographics Outcome Report • Receipt of the SSA8019 file • Merge of files • Creation of the SSA8019 No Insurance or Change of Insurance report • Generate case alert • Sending the SSA8019 No Insurance or Change of Insurance report	MMIS should process files more quickly than current 1.5 days average. Real-time eligibility data would be ideal, but could be reduced to several hours instead of 1.5 days. To accomplish this, the files could be sent from CBMS to the MMIS more frequently. In addition, consider sending CBMS files directly to the MMIS, instead of through the State Mainframe.

[11] Interface Overview: Colorado Benefit Management System. July 1, 2004. Version 4.0

SDAC (Interfacing System)	The SDAC will build, operate and maintain a data warehousing capability and capacity that integrates data from a variety of data sources, including claims data from the Department's Medicaid Management Information System (MMIS), the Colorado All Payor Claims Database (APCD), and the Colorado Regional Health Information Organization (CORHIO) Health Information Exchange (HIE). The Department recently contracted with Treo Solutions to provide an analytical database to support the Medicaid Accountable Care Collaborative (ACC) initiative. The SDAC and the information provided by the SDAC will be an essential element in the management of the ACC Program. Central to the overall management of a client's health care is the availability and analysis of critical data to better align provider payments with health outcomes as well as identify appropriate interventions that can dramatically improve the health of Medicaid Clients.	The Department would like to combine the SDAC with the overall business intelligence functions and data warehouse. The business intelligence systems would house data from multiple sources, including the Department's Medicaid Management Information System (MMIS), the Colorado All Payor Claims Database (APCD), and the Colorado Regional Health Information Organization (CORHIO) Health Information Exchange (HIE).
Health Benefits Exchange (System and Initiative)	The Colorado Health Benefits Exchange (COHBE) is scheduled to launch in October 2013 and will establish a marketplace for Coloradans to shop for and purchase health insurance based on quality and price. The COHBE will provide all the functionality of a traditional insurance broker or agent to ensure proper eligibility and guide a consumer through the enrollment process, revolutionizing how coverage is sold.	The COHBE team is currently working with CBMS to facilitate interoperability. Most interfacing needs of the COHBE will be isolated to CBMS, and will not require any work directly related to MMIS interoperability. The MMIS will need the existing interface to CBMS (for eligibility information), but the COHBE will provide all other information to the MMIS downstream. One of the key goals is to ensure that the consumer experience is positive; one way to ensure this is to consider a Single Sign-On between the HBE and the MMIS to streamline the consumer process. In addition, the Department indicated that they would like the ability to do a 'warm hand-off' between the COHBE call center and the MMIS call center, which is a consideration for fiscal agent services.

COFRS (Interfacing System)	The Colorado Financial Reporting System (COFRS) is a financial information system that maintains the official accounting records for the State of Colorado government. With nearly 3,000 users statewide, it handles approximately $9 billion in transactions per year. Most financial transactions for the State are processed directly in COFRS. All financial activities for the State are eventually recorded in COFRS, even if first processed in a specialized accounting system operated by a state agency. COFRS is the current State system for payment processing, which is maintained by the Department of Revenue. The current system is a mainframe-based system and receive payment files from the MMIS in order to process payments.	The Department would like the MMIS to process payments to providers. While the State doesn't have any specific regulation against using another system to provide payment processing, this capability would be dependent upon the overall MMIS option selected by the Department. In addition, all financial activity must eventually be recorded in COFRS.
Business Utilization System	The BUS is a Case Management system for Home and Community Based Long Term Care clients and Nursing Facilities. The ULTC 100.2 is the intake form/assessment that health care providers and/or case managers use for recording daily living scores/acuity scores. The Department maintains the content of the ULTC 100.2 reports in the BUS. Also, the BUS contains Preadmission Screening and Resident Review (PASRR) information, Home Care Allowance and Instrumental Activities of Daily Living (IADL)/basic activities of daily living (ADL) information, and Service/Care Planning for Preadmission Review. The BUS is a SQL Server based application with a web-based front end that is currently not integrated with the MMIS. The application contains almost 128,000 records, is utilized by more than 900 case managers and more than 52 different agencies. In addition the BUS has a limited provider directory for Nursing Facilities and Case Management agencies.	Functional assessment data is an especially critical component in effectively managing care delivery for Medicaid long-term care clients. Case managers collect this clinical data set and enter the data into the BUS following the format of the ULTC 100.2. Functional Status data are also collected for certain other Medicaid clients in a paper-based format as part of the Short Form 12 (SF12) and CCAR surveys and sent to external contractors who electronically enter the data. The contractors aggregate the data and send summary reports to the Department. Although these data serve useful purposes, the utility of the data is limited because they do not give a complete picture of the client's medical history. Because the data are contained in the BUS, or the data are collected manually and summarized, the Department cannot develop a single picture regarding the care that is being provided to an individual, or determine if the outcomes of that care have been successful. Neither functional status nor assessment data is integrated with claims data in the MMIS. The Department requires a more transparent view of their client's health care history in order to coordinate care more effectively and to ascertain whether Medicaid programs are working as

		intended. A patient-centered approach to health care requires a patient-centered view of data. The department should be able to store functional status and assessment data in system, such as the enterprise data warehouse or the MMIS, that can be integrated with other Department systems. Long-term care case management technology and the receipt of functional status data should be integrated into the Department's IT infrastructure to achieve a patient-centered approach. Specifically, the BUS should become interoperable with both the MMIS and CBMS to utilize shared services going forward.
All Payors Claims Database	As the push for health care reform becomes more intense across the United States, there becomes an increasing need to develop tools that enable an analysis of health care delivery. As a result, All Payor Claims Databases (APCDs) are being deployed. These databases contain aggregated claims data from private and public insurance carriers. APCDs have the unique ability to longitudinally track health care delivery across carriers, facilities and providers, identifying important trends and tracking costs. In addition, APDs are used to examine the impact of reimbursement methodologies, study public health interventions, and examine how health care resources are utilized in terms of quality, outcomes, and/or costs. Eleven states across the United States have already implemented an APCD.	Rules published by the Department, effective October 15, 2011, promulgated, in addition to the timing for data submission, the specific data files and data elements that insurance carriers must submit to CIVHC, the administrator of the APCD. The data files and associated elements require the ability to create a flat file extract of medical claims and pharmacy claims, and their associated eligibility and provider data, from the MMIS. These flat files need to be created monthly and transmitted to the APCD via a secure FTP site. The MMIS must possess a robust reporting capability and the ability to produce a variety of data extracts that support Medicaid program management and the ability to share data with other applications. The APCD Data Submission Guide should be included as part of the MMIS procurement RFP to ensure that those requirements can be achieved as part of the modern MMIS' decision support system and analytical processing functionality.

Provider Web Portal	The Colorado Medical Assistance Program Web Portal (CMAP Portal or Web Portal) is a web-based application that interfaces with the MMIS and other Web portals. It enables Medicaid providers and other entities to electronically send and receive secure HIPAA and non-standard transactions to the Department's MMIS and to verify client eligibility via information sent from Colorado Benefits Management System (CBMS) to the MMIS. The Colorado Web Portal RFP was released in November 2011. The contract with the current contractor, CGI Federal, Inc. ends on June 30, 2012. The Department is looking for an organization to provide services to operate and maintain the Web Portal, and be able to transition into the new within that time constraint. The Governor's Office of Information Technology (OIT) is currently the hosting contractor responsible for the infrastructure supporting the Web Portal application, including the procurement of hardware and software, network configuration and maintenance connectivity with ACS.	The new MMIS must be able to interface with the Provider Web Portal. Users should be able to seamlessly access the Department's LTC Case Management, Screening, and PA processes, and federal system for Systematic Alien Verification for Entitlements (SAVE) via the Web Portal. As requirements for other Department and federal initiatives are developed, the Web Portal may be required to allow access to new secured Web Services and be capable of interfacing with additional MMIS transactions implemented by the new contractor or third party vendors.
Prior Authorization Web Portal	Providers must access a separate web-based system to process prior authorizations. The current system is maintained by the Utilization Management contractor. Providers supply unique IDs and passwords to access this PA system.	The new MMIS interface to the Prior Authorization Web Portal should provide efficiency gains in terms of provider access. The prior authorization process should be rolled into the DSS or MMIS and provide user-friendly integration with all other required interfaces and reporting tools. The main goal is to eliminate the need for providers to access multiple log-in screens. Ideally, the Department would like Single Sign-On (SSO) access with tight integration with a Business Intelligence layer. This integration would enable the Department to bring analytic results back to the point of care. Recent discussions and stakeholder input have not been limited to providers, but also to individuals.

Federal and State Initiatives		
State Medicaid HIT Plan and Initiatives	By utilizing the recently formed HIT Strategic Planning Committee, the Department can continue to evaluate how Medicaid HIT initiatives, CORHIO initiatives, Medicaid EHR incentive program funding, and State Office of Information Technology processes can leverage their respective funding and infrastructure such that the overall State HIT vision can achieve successful execution.	The new MMIS must be able to continue to support HIT initiatives and data sharing with the statewide HIE to support improved clinical outcomes and patient-centered care through HIT adoption.
OIT Enterprise Standards and Services	The Colorado Office of Information Technology (OIT) is currently working on a road map for State-level standards for IT, which includes web-based, database, COTS, and SOA standards. Specifically, in relation to this project, OIT plans to: 1) utilize NIEM (National Information Exchange Model) for data standards; 2) define XML standards; and 3) encompass principles of the MITA framework for initiatives aligning with health care in Colorado. OIT's road map, which is targeted for completion in Q1 2012, is based on three key Enterprise areas: • Single Sign-On • Master Data Management (OIT is sponsoring the RFP for the start of master data mgmt; anticipated release is for June 2012) • Identify Management	Where possible, OIT suggested incorporation of enterprise services into the new MMIS, including SSO, integration with Master Data Management, and Identify Management. In addition, OIT would like the Colorado MMIS procurement team to consider the following factors as part of the procurement strategy and requirements sessions: • Focus on Enterprise level synergies to create efficiencies • Maximize the use of COTS, where appropriate, and promote interoperability between COTS • Consider the use of Cloud Services • Master Data Management for client correspondence and other data sharing services. Colorado Information Marketplace will be used for data integration among services, and would be a good point of integration Rules engine that could be interoperable between systems • CBMS/MMIS Integration – Enhanced interoperability • Web Services directly to IRS A recommendation for the Department is to continue ongoing communications between OIT and MMIS project team during the DDI period. Timing of various implementations will be challenging, but open communications can help promote alignment of system efforts.

HIPAA 5010	HIPAA 5010 is an upgrade on the existing form of HIPAA standards and transactions rather than a significant change in the way HIPAA-defined benchmarks have been defined for processing transactions. HIPAA 5010 has been created in such manner that the forthcoming changes in the revised medical billing/coding data of ICD-10-CM & ICD-10-PCS will be accommodated by all payors, providers, and clearinghouses. These changes in the coding systems are scheduled to be made effective October 1, 2013.	Whichever option the Department seeks for a system will be HIPAA 5010 compliant, given the implementation timeframe. Therefore, this requirement must be addressed in the RFP(s). In addition, once the standards committee recognizes industry readiness for HIPAA 6012, the system will need to be flexible to adopt to new standards.
ICD-10	ICD-10-CM codes are designated for use in documenting diagnoses. They are 3-7 characters in length and total 68,000, while ICD-9-CM diagnosis codes are 3-5 digits in length and number over 14,000.Moving to ICD-10 is expected to impact all physicians and payors. Due to the increased number of codes, the change in the number of characters per code, and increased code specificity, this transition will require significant planning, training, system compliance, as well as other necessary investments.	The Department will need to ensure RFP requirements address ICD-10. The selected system and/or service option will must be compliant with ICD-10.
Statewide HIE	The Statewide Health Information Exchange through CORHIO offers the Department the opportunity to leverage a transport protocol and information exchange infrastructure to enhance and augment existing MITA initiatives in a scalable, repeatable fashion, facilitating current and future business requirements.	The Department intends to leverage the HIE infrastructure to provide Medicaid patients and providers with required information to improve care and reduce program expenditures. While the MMIS currently provides data to the statewide HIE, the State should consider leveraging Business Intelligence to integrate clinical data with claims data.

State Medicaid HIT Plan	The primary technical strategic initiatives outlined in the HCPF State Medicaid HIT Plan (SMHP) are as follows: • Increase provider adoption of EHR functionality ranging from basic to complex systems; • Support use of Personal Health Records (PHRs); • Link HIT adoption to Health Information Exchange (HIE) and demonstrated quality improvement; and • Leverage and coordinate efforts among state agencies and local HIE initiatives to maximize the value of HIT-targeted federal funding, reducing costs and building efficiencies wherever possible.	The new MMIS must be able to share claims and member data with the data warehouse functionality. Continue to support Medicaid HIT initiatives, including data sharing with the Statewide Health Information Exchange.
Accountable Care Act	On March 23, 2010, President Obama signed into law the comprehensive health reform legislation, the Patient Protection and Affordable Care Act (ACA). The ACA creates new requirements for expanded coverage and accountability mandates for those programs. Medicaid is the foundation for health coverage for low-income individuals under health reform. The program is expected to cover an additional 16 million people by 2019. The new law provides a national floor for coverage, eliminates the exclusion of childless adults from coverage under the program and provides states with significant new federal resources to fund the expansion. In addition, Medicaid will continue to fill gaps in the health care system by providing long-term services and supports, assistance to low-income Medicare beneficiaries, and general health care support. The ACA includes a significant expansion of Medicaid, an individual requirement to obtain health insurance, and subsidies to help low-income individuals buy coverage through newly established Health Benefit Exchanges.	The ACA will increase the number of Coloradans that are eligible for Medicaid assistance. Additionally, the legislation promotes administrative simplification of the enrollment process and form, promotes increased communication regarding available benefits, and promotes solutions to improve access to care and quality of care. Through the ACA, moves the MMIS closer to the higher levels of the MITA Maturity model, as well as the initiative's original Concept of Operations. Some of the key initiatives of the ACA that directly impact the MMIS are: • Modification to Enrollment and Eligibility • Modifications to Program Integrity • Modifications to Service and Payments • Providing Enhanced Long-Term Care (LTC) Services • National Correct Coding Initiative

5 – MMIS Procurement Alternatives Analysis

This section contains the alternatives analysis methodology that was used to identify the recommended MMIS alternative for input to the procurement strategy. Four preliminary options were defined and discussed with the Department. These options were quite broad and were viewed as "super-sets" of alternatives; that is, there were several sub-options worth considering for each option. Based on the evaluation results of the facilitated alternatives analysis sessions, the Department would like to maintain some flexibility, both now and in the future, regarding the final implementation of the selected option even though the final recommendation is to proceed with acquiring an MMIS. Therefore, the Department should consider writing the RFP based on outcomes that will allow for some flexibility among the various options. The options that were proposed and evaluated are described below.

1. **Acquire an MMIS**: This option entails acquiring a transfer MMIS and modifying it for use in Colorado. Colorado has experience with this type of procurement in the past and it is probably the most straightforward in terms of clearly established funding and contracting approaches. It is also fraught with delays, unrealized expectations, and in some cases, outright failure during the development stages. The main considerations for this option include the degree of customization that is required or desired by the state. In general, the more customized the system the less flexible it is for future changes. The current Colorado MMIS is an example of a highly customized MMIS. The other main consideration is the degree to which COTS products will be incorporated into the MMIS. Most modern MMIS's incorporate COTS products to one degree or another. Some claim to be primarily built of integrated COTS products while others use a more traditional MMIS core surrounded by selected COTS products. On the more innovative side of this option are component-based applications for various functions such as provider and client portals, and claims rules engines that make up the "MMIS foundation."

2A. Broker claims processing and administrator services through competitive procurement process: This option entails contracting vendor services for various claim types. For example, pharmacy claims, dental claims, medical claims, and institutional claims could all be brokered out to one or multiple entities that currently process those claims in a

commercial environment. Since the vendor would be taking on the full service set for claims processing, acquiring and modifying a core MMIS may not be necessary. For program management and reporting purposes, processed claims data would be integrated into a new data warehouse, including various business intelligence functions for data management, reporting, and potential enterprise decision-making. The main consideration for this option would be the Department's tolerance for modifying current policies, business rules and organizational structure to find a better fit within a commercial processing environment. Another primary consideration is the amount of planning and negotiating needed to fit federal funding rules to this approach. Both areas would require more up-front planning time as part of the procurement, but that time may result in a shortened implementation for this and future Medicaid claims processing contracts. In addition, unique program specific needs may not be supported through baseline system and may require increased configurability (i.e. Long Term Care, etc.).

2B. Broker claims processing and administrator services through an existing Department relationship (e.g., Colorado Access and Rocky Mountain Health Plan): This option is very similar to option 2A, but would potentially eliminate the lengthy procurement process associated with traditional MMIS procurements by contracting directly with an existing partner. However, the direct contracting approach may need further assessment of impacts to state procurement laws. This option may also provide the Department the ability to leverage funds already incurred towards their partners' existing infrastructures. In addition to the primary considerations associated with option 2A, the Department would also need to consider the potential impacts and/or supplemental contracts that may be required if the vendor cannot support the required administrative functions.

3. Participate in a Multi-state consortium for MMIS: Working with other states, Colorado could either lead or participate in a consortium to develop a multi-state MMIS. Such an approach would most likely be deemed acceptable by CMS, and CMS is even willing to facilitate planning efforts. While the technical aspects of developing a multi-state system are fairly straight-forward, the complexity and the number of decision points involved in negotiating a contract for two or more states could prove extremely challenging. This option would require the most up front planning of any of the options being considered. If

another state could be identified that has either recently implemented or is in the process of implementing an MMIS and that would be a good fit program-wise, and demographically for Colorado, then the amount of up-front planning could be shortened. Depending on how this option is framed, it may require the most work and extensive negotiating to conform to state and federal purchasing rules. Some states have pursued an in-state version of this option in the past; constructing a MMIS capable of processing claims for other in-state programs and benefits.

Option 1 has many working examples, but Options 2A and 2B have not been fully proven for a fee-for-service environment in the public sector. Option 2 has some precedence in pharmacy claims processing and enrollment processing for managed care programs.

In our research we found willing vendors, including not-for-profit payors, who have expressed interest in entering the domain of managed fee-for-service and some even suggested taking on additional risk for implementation since the approach is not established for the MMIS market. Private sector payors claim to be able to implement claims processing and supporting functionality in less than a year, but the average implementation is between 12 to 18 months. Colorado Access recently selected Trizetto's QNet product and has plans to implement the system in 12 months. This is the same base IT product offered to the MMIS market through Molina Medicaid Solutions. Colorado Access expressed interest in collaborating with the State to provide an existing infrastructure for a service-based approach.

Option 3 does not have many working examples in the MMIS space, but there are other health and human services system implementations that demonstrate the viability of state collaboration, including WIC Consortiums (Colorado is a member of a multi-state consortium). The shared MMIS between Hawaii and Arizona is the only current example of a truly shared MMIS. However, many states implementing the same baseline MMIS have demonstrated some collaborative work for selected enhancements and legislative initiatives.

Alternatives Analysis Overview:

Based on the above options, Public Knowledge facilitated two alternatives analysis sessions with project stakeholders, using specified evaluation criteria, to determine the option that will ultimately drive the procurement strategy for the MMIS. Below is an overview of the alternatives analysis process that was used to evaluate, score and select the final option.

Our approach for the MMIS alternatives analysis included an evaluation of the MMIS options at a high-level, based on pre-defined considerations, using specified evaluation criteria. Each alternative was evaluated and scored against the same considerations and criteria. Based on input from project leadership and the Project Guiding Principles, we defined four viable alternatives. Options 2A and 2B, and Option 3 would require extended planning and negotiations with CMS, if pursued. In addition, those options carry more risk without strong support from the Department and the Governor of Colorado. However, they could produce significant savings and potentially quicker implementations. Figure 13 illustrates an overview of the alternatives, considerations, and evaluation criteria that was used for evaluating the alternatives. Additional details regarding the end-to-end process used for evaluating the alternatives can be found in subsection 5.2.

5.1 – Guiding Principles and Considerations

Before going through the alternatives analysis process, Public Knowledge worked with Department leadership to determine the project guiding principles and considerations that must be considered to deem options acceptable. Figure 13 on the following page highlights considerations, in conjunction with the project guiding principles, that helped drive the alternatives analysis process:

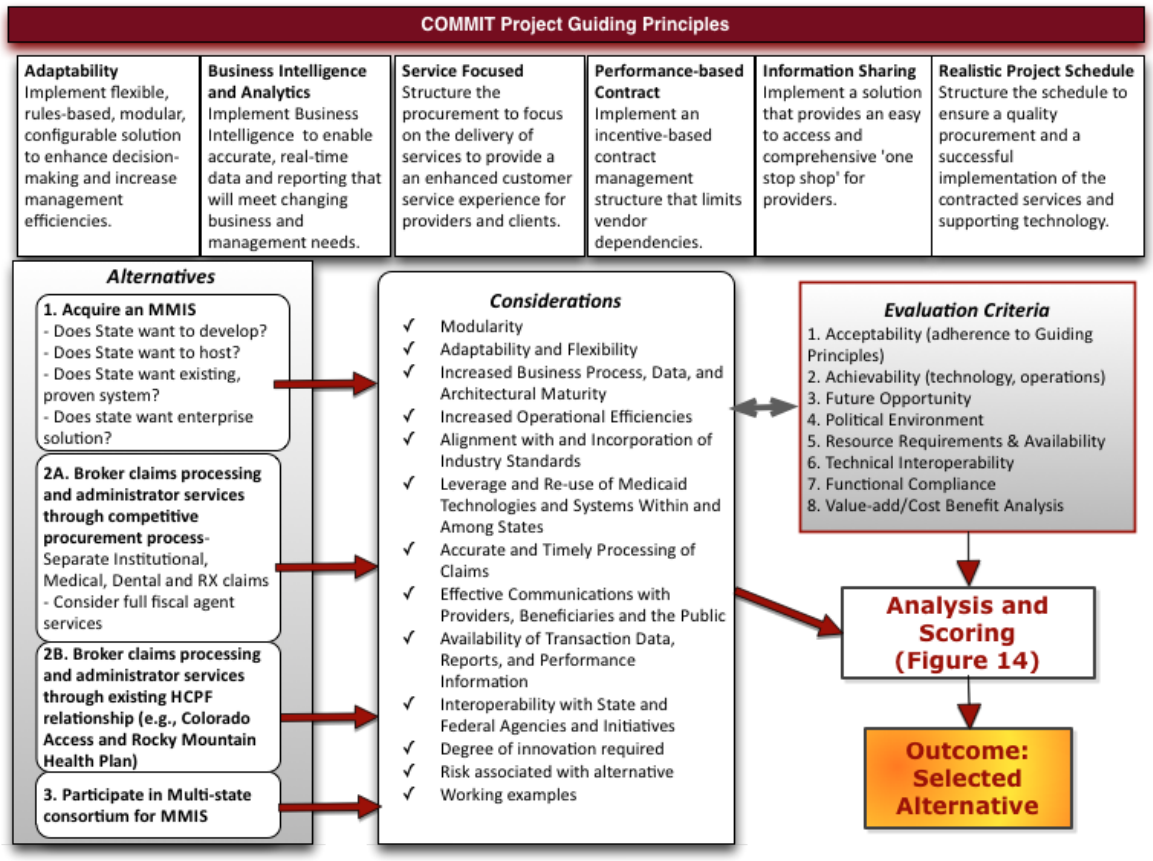

Figure 13 – Project Guiding Principles and Considerations

5.2 – Methodology

This analysis assesses all of the viable options for the Department's decision-makers to consider in choosing a direction for Colorado's MMIS. Public Knowledge analyzed each option against criteria agreed upon with the Department project team. The project team and Department stakeholders then participated in a facilitated scoring session to score the alternatives. The result of the scoring session produced a recommended direction for the Colorado MMIS.

The project team and Public Knowledge used a structured approach to complete this alternatives analysis. Our end-to-end analysis and scoring approach are depicted in the graphic on the following page.

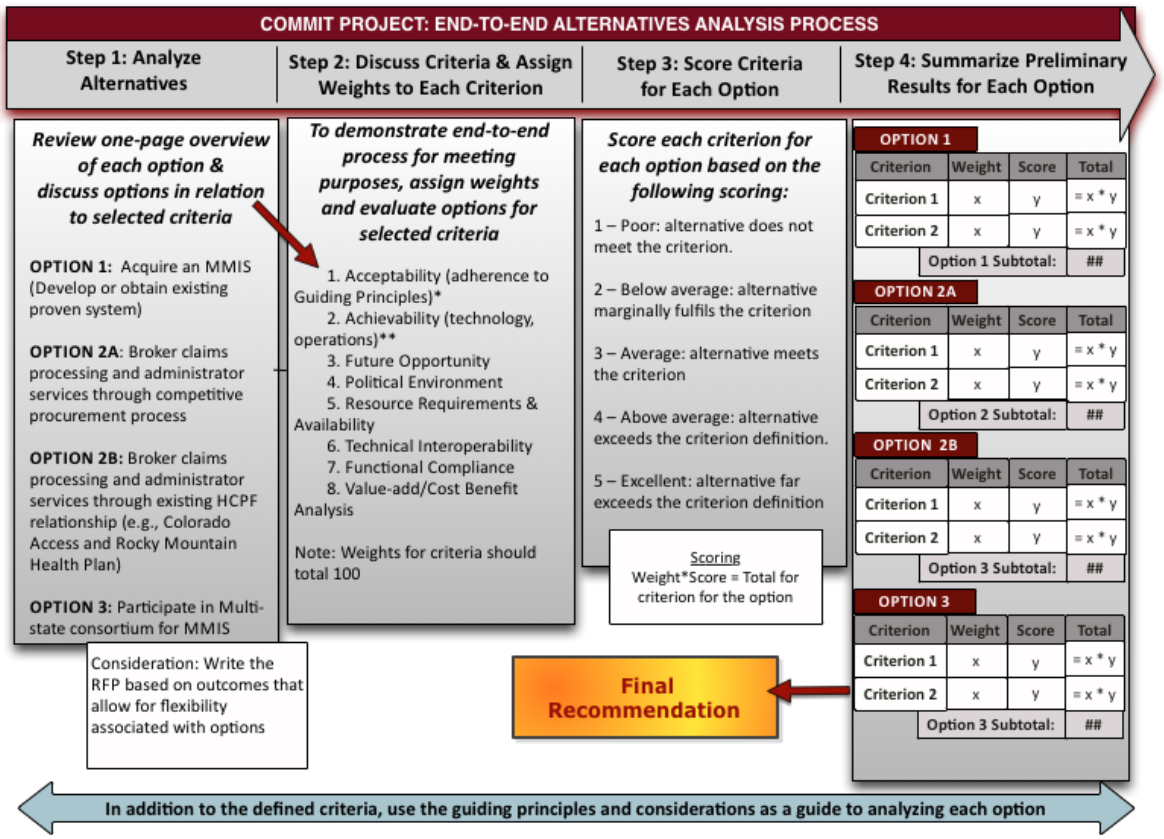

Figure 14 – Alternatives Analysis Scoring Approach

The methodology shown above, includes the following key activities:

- **Analyze**: With guidance from the project's guiding principles, Public Knowledge analyzed each feasible alternative against the evaluation criteria agreed upon with the project team. This step involved analyzing the information gleaned during the research phase, adding any new information needed to inform the Department's decision, assessing each alternative's compliance with the project's guiding principles, and offering an overall assessment of each alternative.
- **Evaluate:** Public Knowledge facilitated two scoring sessions with the project team and Department stakeholders. The scoring process required the Department to prioritize each criterion; Public Knowledge assigned weights to each criterion based on priority. Participants then assessed and scored the criteria for each option.
- **Recommend:** The results of the scoring session helped to produce a recommended direction for the MMIS.

5.3 – Evaluation Criteria

The project team jointly defined evaluation criteria to objectively consider each alternative against one another. The criteria were based on best practices from similar projects and input from subject matter experts.

The evaluation criteria used in this analysis along with their definitions are listed in the table below:

Table 12 – Evaluation Criteria

Scoring Assessment Criteria Definitions	
Acceptability	How acceptable this alternative is from operational, political and administrative perspectives, including the degree of conformance with the project's guiding principles. *(high score is more acceptable)*
Achievability	The achievability of the alternative from a technical, administrative, and operational perspective, within time constraints. *(high score is more achievable)*
Future Opportunity	How the alternative supports and lends itself to the future state of the Colorado MMIS, based on desired "to-be" capabilities and system maturity. *(high score indicates more future opportunity)*
Political Environment	Is this the right time to consider this type of alternative, within the current political environment? *(high score indicates more alignment with current political environment)*
Resource Requirements & Availability	Consider the resource requirements needed for the alternative compared to the availability of the needed resources. *(high score indicates belief that the resource requirements needed are available)*
Technical Interoperability	The ability of the system to meet Department technical requirements and evolve from a functional perspective, including assessment of how compatible the alternative is with Colorado's enterprise architecture vision. *(high score for more technical interoperability)*
Functional Compliance	How closely the alternative conforms to Colorado's MMIS system and program functional requirements, including the MITA business processes. *(high score indicates functional compliance with MMIS and MITA requirements)*
Value-add/Cost Benefit Analysis	The value offered by this alternative beyond what the current system or other alternatives have to offer. *(high score is more value added benefit)*

5.4 – Scoring

Public Knowledge provided the criteria weights based on the Department's strategic priorities. Those relative weights, along with the evaluated score, determined the relative ranking for each alternative. Weighting information is included in the scorecard table in Section 5.7. In addition to the criteria defined in the previous section, the alternatives analysis process used the guiding principles as a guide in analyzing each MMIS option. The assessments of how well each option conformed to the guiding principles are documented under the acceptability considerations.

Public Knowledge facilitated two sessions for the project stakeholders to discuss and evaluate the criterion for each alternative. The COMMIT project has multiple stakeholders including MMIS, procurement, and other state agency stakeholders. Many stakeholder needs overlap among groups, but some issues are distinct to each group. The Department assembled a representative group of internal stakeholders to evaluate and score the identified options.

The MMIS alternatives were evaluated and scored separately, in chronological order. Stakeholders independently assigned a raw score to the criterion for each alternative, ranging from 1 to 5. After sharing and discussing the basis for each score, the stakeholders came to a consensus on a group score for each criterion and option. When all criteria for each alternative had a group score, Public Knowledge calculated the total score and relative 'ranking' based on the pre-defined weights. For example, if a criterion was assigned 20 points, and the alternative received 4 points from the group, the score for that criterion would be 80 (20 x 4 = 80).

After the initial scoring session, the group reconvened to discuss and address any discrepancies that were identified as a result of the initial scoring session. In addition, Public Knowledge explained how the weights for each criterion were determined and disclosed the relative rankings for each alternative. The group discussed the basis for the final scores, resolved outstanding discrepancies and agreed that the relative rankings reflected the overall group consensus. The alternative with the highest score was Option 1, which provided direction for the Department's procurement strategy. The scores were defined as follows:

Table 13 – Scoring Scale

1	**Poor** – alternative does not meet the criterion.
2	**Below average** – alternative marginally fulfills the criterion.
3	**Average** – alternative meets the criterion.
4	**Above average** – alternative exceeds the criterion definition.
5	**Excellent** – alternative far exceeds the criterion definition.

5.5 – Assumptions and Constraints

The following issues, assumptions, and constraints formed the landscape for this analysis:

- Public Knowledge focused the analysis on core MMIS options, including supporting systems and services.
- The facilitated sessions focused on options associated with core MMIS functions. Other factors, such as the number of RFPs and the specific contracts that will be included within this procurment will need to be considered as part of the final strategy. The facilitated sessions were necessary to develop the ultimate recommendation to the Department for proceeding with a MMIS procurement strategy.
- Department staff and stakeholders participated in defining guiding principles, considerations, and the scoring session.
- For purposes of evaluation, the alternatives analysis team agreed that 'timing' referred to having the MMIS up and running. Although the Department's target goal is June 15, 2015, that date could change based on the selected approach. The group agreed that a 'successful' MMIS implementation completion in terms of timing (for purposes of evaluation) is Fiscal Year 2015-2016. Implementation risks and 'timing' were scored under the Achievability criterion.
- Future flexibility and/or cost sharing (pertaining to private vendors) were scored under the Future Opportunity criterion.
- All costs associated with customizations were scored under the Value-add/Cost Benefit Analyis criterion.

- The scoring and evaluation for Options 2A and 2B were based on the premise that CMS will support both options, and provide adequate funding and compromise for implementing either option.
- The assumption for evaluating Option 3 was that Colorado would be the 'leader' in the partnership and could use this option as a potential future approach if not pursued immediately.
- Although it wasn't officially documented as a viable option, the Department also evaluated and scored each criterion for Option 4, which is to keep the existing MMIS system. Scoring this option is necessary as part of the APD process.

5.6 – Evaluation of Alternatives based on Criteria

This section will contain a summary of each alternative described in terms of background. It will also describe considerations for each evaluation criterion and an overall assessment of the option's viability. The descriptions are not meant to be comprehensive but rather to highlight the differences between alternatives. Considerations were developed to the point of being able to rank one alternative against another in terms of the evaluation criteria.

Prior to the evaluation and scoring, the stakeholders met to discuss and review each option. Potential advantages and disadvantages were discussed for each option. This discussion helped provide a baseline for further analysis of the options in relation to the criteria.

Table 14 – Potential Advantages and Disadvantages for Identified MMIS Options

Option	Potential Advantages	Potential Disadvantages
Option 1 Acquire a MMIS	• Current familiarity with MMIS functions and processing approach • MMIS vendor and system availability in marketplace • Able to leverage fiscal agent services • Can incorporate an acquisition strategy that allows for separate contracts for MMIS, DSS, other operational services • Flexibility in hosting options (State or vendor) • Option to select a previously certified MMIS (CMS approved based on use of the Medicaid Enterprise Certification Toolkit-MECT) • Less uncertainty about software ownership rights than with other options • CMS 90/10 Funding	• Cost of developing and implementing a new MMIS • Long implementation timeframe of 36 months or more (based on other states' projects) • Vendor costs associated with new system risk (shift to operational costs) • Future changes likely to be costly and time-intensive due to the highly customized approach
Option 2A Broker claims processing and administrator services through competitive procurement process	• Vendors have agreed to take on financial risks associated with implementation • Able to leverage fiscal agent services • Provides opportunities to upgrade and enhance components and services • Implementation timeline may be shorter than that of traditional MMIS • Modernize claims processes without need for high-risk MMIS implementation • Potential to cut FFS program and infrastructure costs • System as a service alleviates burden on State staff to manage additional workload for some aspects of claims processing • Manage data on back end through business intelligence functionality • Not tied to system architecture but could meet various aspects of MITA	• Uncertain CMS buy-in on approach • Approach is unproven for all claim types found in a MMIS (fee-for-service) • Scope of risks is unknown • Will require some modification to existing business processes • Unique program specific needs may not be supported through baseline system and may require increased configurability (i.e. Long Term Care, etc.) • May not be eligible for enhanced match funding from CMS • State staff may not buy-in due to impact on roles and responsibilities • Political acceptance and achievability are uncertain • Time for business mapping could be extensive and is unknown at this point in time

Option	Potential Advantages	Potential Disadvantages
Option 2B Broker claims processing and administrator services through an existing Department relationship (i.e. Colorado Access or Rocky Mountain Health Plan)	• May not have to go through lengthy procurement process • May provide ability to leverage funds already incurred towards existing infrastructure • Implementation timeline may be shorter than that of traditional MMIS • Provides opportunities to upgrade/enhance components and services more often • Modernize claims processes without need for high-risk MMIS implementation • Potential to cut FFS program and infrastructure costs • System as a service alleviates burden on State staff to manage additional workload for some aspects of claims processing • Manage data on back end through business intelligence functionality • Not tied to system architecture but could meet various aspects of MITA	• May not be able to support administrative functions • May need further assessment of impacts to state procurement laws for direct contracting process • Uncertain CMS buy-in on approach • Approach is unproven for all claim types found in an MMIS (fee for service) • Scope of risks is unknown • Will require some modification to existing business processes • State staff may not buy-in due to impact on roles and responsibilities • Political acceptance and achievability are uncertain • Time for business mapping could be extensive and is unknown at this point in time • May not be eligible for enhanced match funding from CMS
Option 3 Participate in Multi-state consortium for MMIS	• RFP could be setup to partner with other states in the future (WY, NM) • This option could be utilized in conjunction with other options • Able to leverage fiscal agent services • CMS is willing to facilitate a multi-state MMIS • Shared cost of core system updates Supplemental federal funding for system improvements and enhancements • Leading the procurement would provide greater control over procurement selection and implementation processes • Future technology changes would be shared by all states • Multiple states provide input on new initiatives and tools, providing better solutions and Federal alignment	• Lack of 'accountability' and contract 'remedies' since it is an inter-state agreement • May require state legislation changes to enter into an agreement • HI/AZ is the only current MMIS model • Process of mapping business rules for each state could be complex • Would require a detailed cost accounting process to ensure each state and various State and Federal oversight entities have access to cost information borne by each state and to track the federal share • Infrastructure is more complex (configuration management, project management, cost tracking) • Additional privacy considerations for multiple state access

We evaluated the viability of options based on the criteria. Tables 15 through 19 summarize the criterion evaluation for each option.

Table 15 – Analysis of Option 1 for Alternatives Analysis Criteria

Option 1 – Acquire an MMIS	
Criteria	**Option 1: Ability to meet Criteria**
Acceptability	The Department rated the acceptability of this option a '5', which indicates that this option would be highly acceptable. Not only is it 'proven'', but it has been the traditional solution for most states in the past. In addition, CMS support is inherently present in this option.
Achievability	The Department rated the achievability of this option a '2'. The justification for the low score is based on statistics from recent MMIS implementations that indicate that the majority of recent MMIS implementations have experienced significant schedule delays. In addition, there are several examples of recent MMIS procurements and/or implementations that have resulted in project cancellations. The group consensus was that most delays and/or cancellations are due to unrealistic requirements and deadlines.
Future Opportunity	The Department rated the Future Opportunity of this option a '3.5'. This option has extensive opportunity to meet To-Be maturity levels. The score is based on the ***ability*** to customize system. This option would allow the Department to control and customize the MMIS at first, with the ability to revise and upgrade in the future. Vendors claim that changes will be faster and easier with 'modern' rules engines, but empasized that rules can still be customized to meet unique program needs.
Political Environment	The Department rated the Political Environment for this option a '4'. This option would be acceptable from a political standpoint since it is the commonly accepted option, and would be a similar approach to past implementations. Both the JBC and General Assembly would be generally supportive of this option. However, this option would likely be the most expensive, making approval more difficult. The Department would need to justify this cost with the benefits provided by 90/10 funding.
Resource Requirements & Availability	The Department rated the Resource Requirements and Availability for this option a '2'. This option would be very taxing on State resources to define the business and technical requirements and to ensure the system reflects current business rules. The Department estimates that the current staff would have to double in size to successfully implement this option.
Technical Interoperability	The Department rated the Technical Interoperability for this option a '4'. There is a high probability that this option would ensure conformance to Colorado's enterprise vision, as well as integrate with the various interfacing systems. The primary factor used to justify this score was the high level of customization that is available for this option. However, the group agreed that the customization that comes with this option is somewhat contradictory to the concept and vision of 'Interoperability.

Functional Compliance	The Department rated the Functional Compliance for this option a '4.5'. This option has a high functional compliance achievability based on the experience of current vendors in this program space.
Value-add/Cost Benefit Analysis	The Department rated the Value-add/Cost Benefit Analysis for this option a '3'. The exact value-add for this option compared to the other options is not significant. Acquiring an MMIS is costly for a state.

Table 16 – Analysis of Option 2A for Alternatives Analysis Criteria

Option 2A – Broker claims processing and administrator services through competitive procurement process	
Criteria	**Option 2A: Ability to meet Criteria**
Acceptability	The Department rated the acceptability of this option a '2.5'. The justification for this score was that the level of acceptability for this option is unknown, especially from CMS. Although we have reached out to several CMS Regions to determine understanding of acceptability at a Federal level, we do not have any clear data to support or deny any level of acceptability. In addition, it could be difficult to get internal stakeholder buy-in because many business rules and/or processes would likely have to be modified. However, the group confirmed that business rules and/or processes may have to change regardless of the approach.
Achievability	The Department rated the achievability of this option a '3.5'. The achievability could be high from a technical, administrative, and operational perspective since it entails leveraging infrastructure from a third party. The State could choose to select an infrastructure that already exists. However, the acheivability would be highly contingent on CMS acceptance.
Future Opportunity	The Department rated the Future Opportunity of this option a '3.5'. This option has extensive opportunity to meet To-Be maturity levels because this option may have some independence from technical infrastructure constraints. In addition, the Department would have more options to upgrade more often, providing incremental upgrades and the ability to re-procure if they aren't satisfied with the solution and/or vendor.
Political Environment	The Department rated the Political Environment of this option a '4', citing that it would be a relatively easy sell to the legislature.
Resource Requirements & Availability	The Department rated the Resource Requirements and Availability of this option a '4'. Although it's less resource intensive than Option 1, it shifts the resources to the Policy staff rather than the Systems staff. With sufficient upfront planning, this option would potentially fall in the medium range for resource needs. Additional Department resources would also be required to assist with Business Process Re-engineering.
Technical Interoperability	The Department rated the Technical Interoperability of this option a '2'. The score was based on the difficulty of interfacing with legacy systems and the fact that the state wouldn't 'own' the system and have the ability to hold the vendor accountable to OIT standards, etc. However, with focus on backend business intelligence, there is opportunity for technical interoperability and ability to have the solution align with Colorado's enterprise vision. This approach would promote data management, rather than strictly systems management.
Functional Compliance	The Department rated the Functional Compliance of this option a '2'. The driving factor for this score is was based on the fact that it would be difficult to hold a vendor accountable to meet MITA standards.

Value-add/Cost Benefit Analysis	The Department rated the Value-add/Cost Benefit Analysis of this option a '4'. This option has the potential for a high value-add/cost benefit analysis due to potential cost and time savings. Although the Department may receive a 90/10 match for system development, there would be cost savings because they would not have to purchase a MMIS or pay implementation fees. Some vendors have suggested they would incur the upfront costs for pre-implementation planning and customization for program business rules. However, the Department would need to consider long-term costs associated with this option because the associated operational costs would likely be substantially higher.

Public Knowledge researched private sector vendors to discuss Option 2 in further detail and to further assess the feasibility. Additional information is outlined below.

Implementation: This approach will require a much smaller implementation window than traditional MMIS solutions, and could be implemented without upfront implementation fees. Rather, states would buy the services to perform the service to their members, and the vendor could configure the system, setup state specific rules and provide the 'implementation' services at no additional cost. The public sector sites an average of twelve to eighteen month implementation window, but are still working on the details for a target implementation timeframe. The cutover would most likely be based on date of service. This approach would allow a gradual increase of claim volume and not require claims history conversion right away. This cutover approach was also used by Maine for their last implementation.

CMS Support/Funding: Vendors have approached CMS with this model, but would like to partner with states to further socialize this option. Based on past discussions with CMS, states would not qualify for the enhanced match (i.e. 75% match on administration costs) with this option because they would not have a 'certified MMIS'. However, they would qualify for a 50% match. To offset the lack enhanced funding, states would save a considerable amount of money not spent on implementation costs (i.e. the 10% typically spent as a result of the 90/10 funding).

Feasibility: Vendors currently provide this functionality to private insurers, as well as Medicaid MCOs (Managed Care Organization), which operate different than private insurers. This approach may require states to compromise on some current business processes, focusing on outcomes rather than the processes.

Table 17 – Analysis of Option 2B for Alternatives Analysis Criteria

Option 2B – Broker claims processing and administrator services through an existing Department relationship	
Criteria	**Option 2B: Ability to meet Criteria**
Acceptability	The Department rated the acceptability of this option a '2'. The justification for this score was that the level of acceptability for this option is unknown, especially from CMS. Although we have reached out to several CMS Regions to determine understanding of acceptability at a Federal level, we do not have any clear data to support or deny any level of acceptability. In addition, it could be difficult to get internal stakeholder buy-in because many business rules and/or processes would likely have to be modified. Specifically, it might be more difficult to get CMS approval for the use of one vendor.
Achievability	The Department rated the achievability of this option a '3'. The achievability could be high from a technical, administrative, and operational perspective since it entails leveraging infrastructure from a third party. The State could choose to select an infrastructure that already exists. However, the negotiation process(es) with existing relationships could prolong the process and might negate the benefit of skipping the procurement process.
Future Opportunity	The Department rated the Future Opportunity of this option a '3'. This option has extensive opportunity to meet To-Be maturity levels because this option may have some independence from technical infrastructure constraints. However, the benefits of more frequent procurements and upgrades would potentially be diminished because it would be more difficult to 'back out' of this contract once the Department was 'committed'. The political implications would be strong, which would counteract many of the other inherent future opportunity benefits.
Political Environment	The Department rated the Political Environment of this option a '2', citing that skipping the procurement process could have high political impacts and may require a statute change. Federal laws for 'sole source' contracting could be very difficult to change.
Resource Requirements & Availability	The Department rated the Resource Requirements and Availability of this option a '3.5'. Although it's less resource intensive than Option 1, it shifts the resources to the Policy staff rather than the Systems staff. With sufficient upfront planning, this option would potentially fall in the medium range for resource needs. Additional Department resources would also be required to assist with Business Process Re-engineering.
Technical Interoperability	The Department rated the Technical Interoperability of this option a '2'. The score was based on the difficulty of interfacing with legacy systems and the fact that the state wouldn't 'own' the system and have the ability to hold the vendor accountable to OIT standards, etc. However, with focus on backend business intelligence, there is opportunity for technical interoperability and ability to have the solution align with Colorado's enterprise vision. This approach would promote data management, rather than strictly systems management.
Functional Compliance	The Department rated the Functional Compliance of this option a '2'. The driving factor for this score is was based on the fact that it would be difficult to hold a vendor accountable to meet MITA standards.

Value-add/Cost Benefit Analysis	The Department rated the Value-add/Cost Benefit Analysis of this option a '3.5'. This option has the potential for a high value-add/cost benefit analysis due to potential cost and time savings. Although the Department may receive a 90/10 match for system development, there would be cost savings because they would not have to purchase a MMIS or pay implementation fees. Some vendors have suggested they would incur the upfront costs for pre-implementation planning and customization for program business rules. However, the Department would need to consider long-term costs associated with this option because the associated operational costs would likely be substantially higher. Although many of the considerations are similar, the Department felt that Option 2A would provide a greater value-add/cost benefit than Option 2B.

Table 18 – Analysis of Option 3 for Alternatives Analysis Criteria

Option 3 – Participate in MMIS Consortium	
Criteria	**Option 3: Ability to meet Criteria**
Acceptability	The Department rated the acceptability of this option a '4'. The level of acceptability for this option is high; higher than Option 1 due to potential greater CMS support (it would support the CMS 'leverage' condition). This option is currently supported by a working example (HI and AZ partnership) in the MMIS space. In addition, we have had some preliminary conversations with the project team for the Colorado WIC consortium to determine feasibility. State stakeholders have indicated that they are willing to further explore this option, possibly in conjunction with another option or in the future.
Achievability	The Department rated the achievability of this option a '2'. The achievability of this option from an administrative and operational perspective is below average due to prolonged implementation timelines as a result of multi-state planning and resource coordination. The Department would need to allow additional time for analysis to determine the best-suited partnerships. Achievement could potentially be higher if project time lines account for the prolonged coordination and planning challenges. In addition, all states involved would need to have similar business processes in place and be willing to compromise on business process modification where needed.
Future Opportunity	The Department rated the Future Opportunity of this option a '4'. This option has a high opportunity to align with the most current CMS Enhanced Funding Guidelines for the Seven Standards and Conditions. Specifically, this option would support the 'Leverage' condition, which promotes the re-use of Medicaid technologies and systems within and among states. In addition, this option would allow states to take advantage of efficiences, lessons learned and past experience via inter-state information sharing. However, the Department would need to plan and mitigate for potential disagreements regarding system requirements and/or business needs.
Political Environment	The Department rated the acceptability of this option a '2'. Both the JBC and General Assembly would be generally supportive of this option, and it is congruent with the Governor's current agenda regarding collaboration. Due to the nature of the Medicaid political environment, gaining support for a multi-state consortium might be slightly more challenging than Option 1. In addition, navigating potential JBC and legislative issues for multiple states could be more challenging.

Resource Requirements & Availability	The Department rated the Resource Requirements and Availability of this option '2'. The option would be fairly taxing on State resources because they would have the added task of coordinating the planning efforts to develop the framework among states. In addition, State resources would be required to participate in collaborative business and technical requirements sessions with other states to ensure the system reflects current business rules. However, resource requirements may drop post-implementation due to sharing resources across states. With the exception of potential disagreements over 'turf', states are likely to understand each others needs, resulting in resource efficiencies and driving states towards consensus.
Technical Interoperability	The Department rated the Technical Interoperability of this option a '4'. There would be a high-level of ability to ensure the option would conform to Colorado's enterprise vision. Other states selected to participate in a consortium would need to share a very similar vision.
Functional Compliance	The Department rated the Functional Compliance of this option '4.5'. This option would have high functional compliance achievability, but business rules mapping in conjunction with the other states would need to be done upfront. In addition, requirements must be clearly defined and jointly agreed upon in order to meet Colorado's MMIS system and program functional requirements and MITA business processes.
Value-add/Cost Benefit Analysis	The Department rated the Value-add/Cost Benefit Analysis of this option '4'. The exact value-add for this option is unknown at this time. Several factors would need to be considered to determine the value-add. For example, if Colorado is the 'lead' state developing/implementing the system, the cost and time savings will be less. If Colorado partnered with a state that already had a solution in place, the cost and time savings would be more significant. Longer-term cost savings should also to be considered if states could share the cost of system upgrades and enhancements.

Public Knowledge contacted Hawaii to discuss Option 3 in further detail and to further assess the feasibility. Additional information is outlined below.

Background: Hawaii initially pursued this approach primarily due to cost implications. In the late 1990s they cancelled their contract with a vendor while DDI was in process. The resulting RFIs for re-procurement came back with estimates of $25 - $40 million, which Hawaii did not have funds for. As a result, they conducted a business requirements study with Arizona because they had modeled their 1115 Managed Care Waiver after that of Arizona. Many of their business processes were similar, which was a key factor in their decision. In addition, initial development costs were much lower than a traditional MMIS procurement.

There is no re-procurement timeline because it is an inter-state contract. Based on the ACA changes and a future MITA SS-A, Hawaii and Arizona will re-evaluate the partnership

according to where both states are going. In the meantime, the partnership is working great and they don't foresee any changes in the near future.

Model: ACS is the Fiscal Agent for Hawaii's front and back-end processes. Fee for service claims are submitted electronically to Arizona for processing. Paper claims are submitted to ACS in Honolulu for data entry into the system in Arizona. Arizona invoices Hawaii on a monthly basis for operational costs (i.e. CPU time, development staff time, etc.). Most work for system upgrades and enhancements is collaborative (i.e. 5010 modifications) and is almost evenly split if both states are implementing. If the requested modification is only for one state, there is a small overhead fee that the initiating state bears. However, they try to minimize individual modifications because those cause the systems to be out of sync. Although they have separate mainframes, the same code base is used on both sides (with the exception of a few state specific tables); as a result both states are required to perform regression testing on any state specific modifications.

Implementation: Arizona had to make some legislation changes to enter into the partnership, but Hawaii did not. Our contact could not recall the specific changes, but does not remember them being significant. The first phase was implemented in 2000 to support managed care enrollment and to process encounters. Phase two, fee for service claims, was implemented in 2002. Both phases were implemented in 13 months. Key factors that led to successful implementations were the similarity in programs and business rules and the fact that the development staff in Arizona knew the business very well.

Feasibility: This model has worked very well for their purposes, and the inter-state relationship is great. However, Hawaii would not recommend this approach for more than two states. Each additional state adds legislation considerations, state CIO negotiations, state IT coordination and additional business process mapping. Because the partnership is between states, there are no 'penalty' clauses in the contract. This makes it more difficult to negotiate 'remedies'.

Lessons Learned: Hawaii recommends that states evaluating this option should consider having multi-states be involved with third party vendor so that each state could hold the vendor accountable. This approach would allow each state to have separate contract(s) with the vendor, but still have capabilities to leverage some functionality and share information. As stated above, states should carefully consider the number of states in the partnership.

Table 19 – Analysis of Option 4 for Alternatives Analysis Criteria

4 – Keep Existing MMIS System	
Criteria	**Option 3: Ability to meet Criteria**
Acceptability	The Department rated the acceptability of this option a '2'. The level of acceptability for this option is low because the system will not become more functionally compliant in its current state. The system is outdated; if another vendor takes it over, it would likely require many changes.
Achievability	The Department rated the achievability of this option a '5'. The achievability of this option is high because it is already functional.
Future Opportunity	The Department rated the Future Opportunity of this option a '1'. This option does not have an opportunity to align with the most current MITA maturity levels as-is. In addition, it does not align with the project guiding principles.
Political Environment	The Department rated the acceptability of this option a '4'. Although the system is outdated, there would be less political pushback if no changes are proposed. This option is the least expensive from a budgetary standpoint.
Resource Requirements & Availability	The Department rated the Resource Requirements and Availability of this option '4'. This option ranks fairly high in terms of resources because there wouldn't be any significant changes.
Technical Interoperability	The Department rated the Technical Interoperability of this option a '2'. It would not address any existing issues or future goals related to increasing interoperability. In addition, it is not aligned with the project guiding principles.
Functional Compliance	The Department rated the Functional Compliance of this option '2'. This option was not scored based on the current 'functional' status. Based on current CMS standards, the functional compliance capabilities are low.
Value-add/Cost Benefit Analysis	The Department rated the Value-add/Cost Benefit Analysis of this option '1'. This option would not provide value-add benefits in the future.

5.7 – Scoring of Alternatives

Table 20 contains the results of the alternatives analysis process and scoring.

Table 20 – Alternatives Scoring Results

		OPTION 1		OPTION 2A		OPTION 2B		OPTION 3		OPTION 4	
Criteria	**Weight**	**Score**	**Weighted Total**	**Score**	**Weighted Total**	**Score**	**Weighted Total**	**Score**	**Weighted Total**	**Score**	**Weighted Total**
Acceptability	**4**	**5**	**20**	**2.5**	**10**	**2**	**8**	**4**	**16**	**2**	**8**
Achievability	**4**	**2**	**8**	**3.5**	**14**	**3**	**12**	**2**	**8**	**5**	**20**
Future Opportunity	**2**	**3.5**	**7**	**3.5**	**7**	**3**	**6**	**4**	**8**	**1**	**2**
Political Environment	**2**	**4**	**8**	**4**	**8**	**2**	**4**	**2**	**4**	**4**	**8**
Resource Requirements & Availability	**3**	**2**	**6**	**4**	**12**	**3.5**	**10.5**	**2**	**6**	**4**	**12**
Technical Interoperability	**1**	**4**	**4**	**2**	**2**	**2**	**2**	**4**	**4**	**2**	**2**
Functional Compliance	**3**	**4.5**	**13.5**	**2**	**6**	**2**	**6**	**4.5**	**13.5**	**2**	**6**
Value-add/Cost Benefit Analysis	**1**	**3**	**3**	**4**	**4**	**3.5**	**3.5**	**4**	**4**	**1**	**1**
TOTAL SCORE			**69.5**		**63**		**52**		**63.5**		**59**

5.8 – Ranking of Alternatives

The viable alternatives were identified and assessed using the facilitated process outlined in the previous subsection. Public Knowledge captured the scores in Table 20 and ranked each alternative based on the total weighted score. The highest scoring option was Option 1, which will serve as input to the recommendation to proceed with the procurement strategy addressed in Section 7 of this deliverable. The final scores are listed below:

- Option 1: 69.5 points
- Option 2A: 63 points
- Option 2B: 52 points
- Option 3: 63.5 points
- Option 4: 59 points

6 – Current MMIS Use Cases

A use case format was chosen to document current Medicaid business processes because it can be adapted to a broad range of remediation activities, from system development and testing, to writing desk manuals. In addition, by documenting business processes at the use case "level", the Department's programs can be assessed against future standards, and changes to existing standards, with minimal additional documentation.

Public Knowledge conducted facilitated group sessions with subject matter experts in order to capture Colorado's current Medicaid business processes. The business processes documented within the Use Case Report (included as separate attachment) are those Medicaid business processes that directly, or indirectly, interact with its MMIS. Business processes are documented from a Department perspective and do not include business processes that are specific to the fiscal agent contractor, ACS, or any other contractor to the Department and/or State. In addition, business processes specific to system interfaces end at the point of becoming an input to the identified interface.

The Use Case Report was provided to the Department for review. This report can be found as an attachment to this document.

6.1 – Alignment of Use Cases, MITA Roadmap, and Procurement

To coordinate activities between the MITA State Self-assessment, the Use Case Report, and the MMIS Procurement, Public Knowledge aligned documentation and descriptions of current business processes to the MITA Framework developed by CMS. For example, the client functions within the Department are identified as Member Management in MITA. Use cases are grouped according to the CMS-provided framework of the MITA Business Architecture. Public Knowledge based its data collection process on the MITA 2.01 published business process definitions.

As part of the MITA SS-A phase (Phase I), of the Colorado MITA State Self Assessment and MMIS Procurement RFP Writer Project, these use cases were analyzed and compared to MITA Business Capability criteria to assess the "As Is" (current) capability of Colorado's Medicaid business processes. Information collected from Public Knowledge's Use Case sessions were used to build the "To Be" Roadmap to develop transition goals for future

program improvements. Results of this analysis are provided within Colorado's MITA State Self-Assessment Report.

As part of the MMIS Procurement Phase (Phase II), of the Colorado MITA State Self Assessment and MMIS Procurement RFP writer project, Public Knowledge will draw from the enhancement ideas (or "To Be") produced during the use case sessions. These high-level ideas will be incorporated into the MMIS requirements sessions. During each session, use case enhancement ideas and MMIS requirements will be refined and clarified. Once requirements have been identified, the comprehensive list will be reviewed and prioritized by Project/Department Leadership and included within the final RFP as appropriate.

6.2 – Summary of Use Cases

This section presents a summary of findings from the use case sessions. It is organized by MITA Business Areas:

- Member Management
- Provider Management
- Contractor Management
- Operations Management
- Program Management
- Care Management
- Program Integrity Management
- Business Relationship Management
- Managed Care

Member (Client) Management

Description:

The Member (Client) Management business area is a collection of business processes involved in communications between the Medicaid agency and the applicant or client and actions that the agency takes on behalf of the client. These processes share a common set of

client-related data. The goal for this business area is to improve health care outcomes and raise the level of client satisfaction.

Business processes include:

- Determine Eligibility
- Enroll Member (Client)
- Disenroll Member (Client)
- Manage Member (Client) Information
- Inquire Member (Client) Eligibility
- Perform Population and Member (Client) Outreach
- Manage Applicant and Member (Client) Communication
- Manage Member (Client) Grievance and Appeal

Findings:

Outside of eligibility determination and client enrollment, the majority of Colorado's Member (Client) Management business processes are manual and lack coordination within the agency. These manual and uncoordinated processes add additional staff resource needs to manage the workload. Determine Eligibility and Member Enrollment are exceptions in that they are primarily automated and standardized processes. Eligibility is automatically provided to, and loaded into, the MMIS from a CBMS feed that includes foster care data from the TRAILS system. MMIS accepts the eligibility and automatically enrolls the client into the appropriate benefit package(s). There is no communication loop that supports reconciliation of eligibility data between the CBMS and MMIS. Information revised due to edits in the MMIS is not shared with the CBMS (and then to TRAILS) causing downstream data integrity issues that impact everything from claims payment to client/applicant communication to population outreach.

MMIS Procurement Impact:

Colorado's MMIS will need to include a more robust Client Management system to provide an opportunity for the Department to reduce manual invention for much of the communication, client inquiry and client information updates. In addition, the MMIS should

incorporate a bi-directional feedback loop between the MMIS and Colorado Benefits Management System (CBMS) in order to provide any updated information to CBMS. An MMIS/Decision Support System (DSS) combination with data warehousing capabilities will provide the Department an opportunity to provide centralized access to data and reporting in order to streamline and standardize many process related to client communication, client inquiry and client information management. Increasing Colorado's electronic data capabilities would also introduce the ability to develop additional interfaces with vital statistics, Internal Revenue Service and criminal history to improve accuracy and reduce eligibility determination timeframes.

Provider Management

Description:

The Provider Management business area is a collection of business processes that focus on recruiting potential providers, supporting the needs of the population, maintaining information on the provider, and communicating with the provider community. The goal of this business area is to maintain a provider network that meets the needs of both clients and provider communities and allows the Colorado Medicaid Program to monitor and reward provider performance and improve health care outcomes.

- Business processes include:
- Enroll Provider
- Disenroll Provider
- Manage Provider Information
- Inquire Provider Information
- Manage Provider Communication
- Manage Provider Grievance and Appeal
- Perform Provider Outreach

Findings:

Colorado's Provider Management business processes are primarily manual and staff intensive. Currently, the Department does not have any automated business rules or an online provider application available to alleviate these manual processes. Enrolling providers requires Department staff, or the Fiscal Agent, to review and verify each application. Manage Provider Grievance and Appeal process and Perform Provider Outreach process also rely on manual intervention. Provider billing manuals and related documentation are available through the provider services website; however, documents are maintained and developed manually and uploaded to the website.

The Department has a Web Portal to provide some automation and electronic information distribution. The Web Portal's self-service business processes is not currently available to all provider types; requiring staff or Fiscal Agent staff to hand-key provider applications and claims into the MMIS, capture provider information updates and to respond to inquiry of provider information for provider types that do not have Web Portal access. In addition to the Web Portal, Colorado has an automated process for program communication, but continue to maintain paper communication methods as requested by some providers.

MMIS Procurement Impact:

Colorado's MMIS will need to include a Web Portal, or interface with the current Web Portal, to provide an online provider application and support automation of many business rules surrounding the review and approval of provider applications. Starting with electronic data is an important step in creating the ability to automate many subsequent features. Specifically, the Department will be able to improve electronic communication and outreach, reduce the amount of time to answers inquiries on providers and provider data, update provider information management and increase the adoption of electronic claims submission. Colorado's MMIS, DSS and data warehouse will need to create centralized access to data and reporting in order to take advantage of electronic data that will help streamline and standardize provider management processes. Increasing Colorado's electronic data capabilities will also introduce the ability to create bi-directional interfaces with credentialing agencies and criminal history to improve provider validation and approval processes.

Contractor Management

Description:

The Contractor Management business area accommodates states that have managed care contracts or a variety of outsourced contracts. Some states may, for example, group Provider and Contractor in one business area. The Contractor Management business area owns and uses a specific set of data and includes business processes that have a common purpose.

*NOTE: The MITA framework has individual business processes for Administrative contracts and Health Services contracts related to how the State Manages, Awards, Closes Out both types of contracts. Within the session, subject matter experts agreed that it was appropriate to include both contract types within the same use case

Business processes include:

- Manage Administrative/Services Contract
- Award Administrative/Services Contract
- Close-out Administrative/Services Contract
- Produce Administrative/Services RFP
- Manage Contractor Information
- Inquire Contractor Information
- Perform Potential Contractor Outreach
- Manage Contractor Communication
- Support Contractor Grievance and Appeal

Findings:

Colorado's Contract Management business processes are manual and resource intensive but, in most cases, are well coordinated within the agency. The Department uses the Bid Information and Distribution System (BIDS) to electronically distribute solicitation opportunities and announce their award. Once a proposal is received via paper, disk, fax or email, Department staff manually review, evaluate and, when appropriate, score proposals. All aspects of awarding the contract, monitoring the contract, communicating with

contractors, answering inquiries regarding contractors, performing outreach and closing out contracts are also manual processes. The State Purchasing Office maintains a statewide Contract Management System (CMS) that is used, depending on the contract type, to track and manage information related to the contracts. However, this data does not currently integrate with the MMIS to assist in electronically monitoring contract performance measures. For contracts that are not maintained in the Contract Management System, Purchasing & Contracting maintains contract information in Department-specific databases. There is no central repository to track information and status related to contract grievances and appeals.

MMIS Procurement Impact:

Services Section is currently considering adoption of Colorado's statewide Contract Managing System. If migration to a centralized/electronic database is completed, this will not only increase the accuracy and consistency of data, but it will create opportunity for the Department to consider automation of a number of the supporting manual steps and yield efficiencies in processes such as: proposal evaluation, contractor communication, outreach and information inquiry responses. Increasing Colorado's electronic data capabilities will also introduce the ability to create bi-directional interfaces with credentialing agencies and criminal history to improve contractor validation and approval processes.

Operations Management

Description:

The Operations Management business area is the focal point of most State Medicaid enterprises today. It includes operations that support the payment of providers, managed care organizations, other agencies, insurers, and Medicare premiums and support the receipt of payments from other insurers, providers, and client premiums.

Business processes include:

- Service Authorization: Authorize Treatment Plan, Authorize Referral, Authorize Service
- Payment Management
- Payment and Reporting: Prepare Remittance Advice/Encounter Report, Prepare COB, Prepare HCBS Payment, Prepare EOB, Prepare Premium EFT/Check, Prepare Provider EFT/Check

- Claims/Encounter Adjudication: Edit/Audit/Price Claims, Apply Claim Attachment, Apply Mass Adjustment
- Capitation and Premium Preparation: Prepare Health Insurance Premium Payment, Prepare Medicare Premium Payment, Prepare Capitation Premium Payment
- Payment Information Management: Manage Payment Information, Inquire Payment Status
- Member (Client) Payment Management: Prepare Member Premium Invoice
- Cost Recoveries: Manage Recoupment, Manage Estate Recovery, Manage Third Party Liability (TPL) Recovery, Manage Drug Rebate, Manage Settlement

Findings:

Colorado's Operations Management business processes, such as authorizing services, referrals and treatment plans are highly manual, lack coordination and are staff intensive. The Pharmacy program has implemented a separate claims payment system that is able to take advantage of a number of processes to provide consistent results. This Prescription Drug Card System (PCDS) interfaces with MMIS, but not all drug related claim types are passed to the MMIS. Any reconciliation between the two systems requires manual review and intervention.

In general, Colorado's Operations Management business processes surrounding claims payment and adjudication are well coordinated and incorporate many automated processes. Due to system configuration limitations and a large change request (CSR) backlog, the current MMIS does not include the most appropriate business rules and data validation requirements. Therefore, the Department created additional manual steps to review and edit claims to ensure accurate payment processing. Attachments to support the adjudication process are not centralized and easily accessible for Department staff.

COFRS, implemented in 1991, is the statewide accounting system that interfaces with the MMIS for all payment processing. Due to the constraints of both legacy MMIS and COFRS systems, payment data provided to COFRS via an interface is limited and does not allow any opportunity to synchronize data in a way that keeps both systems accurate. As a result, Department staff has implemented many manual processes to maintain and update necessary

MMIS information used for fiscal analysis and reporting. Lack of system coordination also requires Department staff to develop and produce multiple reports in order to manually reconcile payment data with claims data for reconciliation and auditing purposes.

Preparation of payment reporting is primarily automated, but there are many opportunities to streamline access to the information used to compile the report. Information used to generate payment reports is not included in the DSS and requires Department staff to run reports from multiple sources that may not contain information from the same point of time. Additional manual validation steps have been implemented to ensure accurate reporting.

Colorado's Third Party Liability (TPL) business processes include a combination of automated and manual processes. The MMIS receives a standard interface from CBMS which has been designed to replace the MMIS eligibility data from CBMS. This overwrite process creates a number of issues for MMIS business processes. For TPL specifically, this process removes historical eligibility data and overwrites important information relating to recoupment. Colorado's TPL and recovery identification opportunities are reliant on manual processes, and the lack of historical eligibility data adds additional manual intervention. Involvement of Colorado's TPL vendor augments the process and has established an effective means of recovery; however, the current MMIS lacks a robust TPL tracking and validation that would allow the Department staff to strengthen Colorado's cost avoidance capabilities.

MMIS Procurement Impact:

Colorado's MMIS will need to be flexible and easily configurable to allow Department staff and its Fiscal Agent to easily and quickly implement changes that will assist in automating many operational business processes. It is also equally important to consider a flexible reporting solution that will allow designated Department staff the ability to create ad hoc data queries to support those processes that cannot be automated immediately or must remain manual. This reporting capability should access a central data source that appropriately provides access to all information necessary for accurate operational reporting.

Colorado's MMIS should also consider alternate methods of associating MMIS claims with the accounting, budget and payment mechanism (currently COFRS). Creating a centralized data source for all information related to claims, clients, providers that include tracking all

historical actions, and attaching pertinent information (including information regarding recoveries, settlements, TPL, Drug Rebate, etc.) to provide the Department with access to comprehensive information to process claims appropriately and enhance its ability to avoid unnecessary costs.

Program Management

Description:

The Program Management business area houses the strategic planning, policy-making, monitoring, and oversight activities of the agency. These activities depend heavily on access to timely and accurate data and the use of analytical tools. This business area uses a specific set of data (e.g., information about the benefit plans covered, services rendered, expenditures, performance outcomes, and goals and objectives) and contains business processes that have a common purpose (e.g., managing Colorado's program to achieve the agency's goals and objectives such as by meeting budget objectives, improving customer satisfaction, and improving quality and health outcomes).

Business processes include:

- Benefit Administration: Designate Approved Service/Drug Formulary, Manage Rate Setting, Develop and Maintain Benefit package
- Program Administration: Develop and Maintain Program Policy, Maintain State Plan, Develop Agency Goals and Initiatives
- Budget: Manage Federal Financial Participation for MMIS, Manage Federal Financial Participation for Services, Formulate Budget, Manage Sate Funds, Manage F-MAP
- Accounting: Manage 1099s, Perform Accounting Functions
- Program Quality Management: Develop and Manage Performance Measures and Reporting, Monitor Performance and Business Activity
- Program Information: Manage Program Information, Maintain Benefit/Reference Information, Generate Financial and Program Analysis/Report, Draw and Report Federal Financial Participation (FFP)

Findings:

Colorado's Program Management business processes are mainly manual, lack coordination within the agency and are staff intensive. Overall, the manual clearance process was consistently noted as a roadblock to quick implementation and approval of programs, policy, and change requests, etc.

Generally, Colorado does not have a standardized process to coordinate and maintain historical program administration and historical policy decisions. Specifically, the MMIS focuses on payment/claims adjudication and currently does not have features or functionality that easily supports program/policy staff decision tracking or impact inquiries. Information gathered for Program evaluation, performance measurement, and Federal reporting is decentralized making the manual process very time intensive. Additionally, Colorado's case management information is not integrated currently with eligibility information or claims information (BUS, MMIS, CBMS do not synchronize data) creating further reporting complications. Inconsistent data sources used to report performance measure findings result in information that lacks credibility with contractors.

A large concern for the Department is that the MMIS limited ability to track, report, and handle multiple pricing structures for both Managed Care encounters and Fee-for-Service claims. This regularly creates conflicts when establishing new benefit packages and requires additional manual workarounds to enter in appropriate data for claim/encounter adjudication.

MMIS Procurement Impact:

Colorado's MMIS should provide easy access to centralized data (including case management) that produces consistent data sets to better support program review and quality practices. Colorado's MMIS or reporting peripheral system will need to provide the Department with configurable reporting options that include the ability to build ad hoc queries as the need arises. This also includes access to data analysis and statistical analysis tools either though the system or via an interface.

Care Management

Description:

The Care Management business area illustrates the growing importance of care management as Colorado's Medicaid program evolves. Care Management collects information about the needs of the individual client, plan of treatment, targeted outcomes, and the individual's health status. It also contains business processes that have a common purpose (e.g., identify clients with special needs, assess needs, develop treatment plan, monitor and manage the plan, and report outcomes). This business area includes processes that support individual care management and population management. Population management targets groups of individuals with similar characteristics and needs and promotes health education and awareness.

With individual client and case manager access to clinical data and treatment history, Care Management continues to evolve and increase in importance in Colorado's Medicaid enterprise. This section includes information related to programs such as: Early Periodic Screening, Diagnosis, and Treatment (EPSDT); Population Management; Patient Self-Directed Care Management; Immunization and other registries; and Waiver Program Case Management. As Colorado's Medicaid enterprise evolves, all clients could have access to care management, including self-directed decision-making.

Business processes include:

- Manage Medicaid Population Health
- Establish Case
- Manage Case
- Manage Registry

Findings:

Colorado's processes around Care Management are highly manual, lack coordination within the agency and are staff intensive. Discussions around care management indicate that staffing levels are too low to compensate for the workload. There is no interface between MMIS,

CBMS and the Long Term Care Case Management system, called the Benefits Utilization System (BUS), requiring Staff to review multiple systems to determine the appropriate and accurate level of care for clients. In addition, subject matter experts felt that the lack of standardization, combined with the complexity of reviewing data in multiple systems to assess appropriate services leads to over-authorization of services.

MMIS Procurement Impact:

Colorado's MMIS should offer a new solution to replace the Case/Care Management system (BUS) with a Case/Care Management system to create centralized access to all data that enables the Care Management staff/agency to make accurate determinations for appropriate services. Introduction of automated reporting, electronic communication and potential client follow-up reminders will also improve the Long Term Care service delivery.

Program Integrity Management

Description:

The Program Integrity business area incorporates those business activities that focus on program compliance (e.g., auditing and tracking medical necessity and appropriateness of care and quality of care, fraud and abuse, erroneous payments, and administrative abuses).

Program Integrity collects information about an individual provider or client (e.g., demographics; information about the case itself such as case manager ID, dates, actions, and status; and information about parties associated with the case). The business processes in this business area have a common purpose (e.g., to identify case, gather information, verify information, develop case, report on findings, make referrals, and resolve case). As with the previous business areas, a single business process may cover several types of cases. The input, output, shared data, and the business rules may differ by type of case, but the business process activities remain the same.

Business processes include:

- Identify Candidate Case
- Manage Case

Findings:

Colorado's Program Integrity business processes are very manual and time intensive. Cases are identified by referral, client Explanation of Medical Benefits (EOMB) responses or through manual development of reports that target data groups or patterns. Once a case has been established, additional data is manually gathered and analyzed to determine what actions will be necessary. Processes related to coordination of required course of action; including communication with the provider, money recovery and applying monies appropriately are all manual.

MMIS Procurement Impact:

Colorado's MMIS that includes provider management capabilities will allow electronic tracking of providers and their claims. This electronic provider management capability should also include tracking information regarding any claims or providers that are being audited; this includes indicators regarding current actions being taken and the status of that action. Additionally, it is important to include new reporting capabilities that promote automation of reports used to identify and manage program integrity cases. Increasing Colorado's electronic data capabilities will also introduce the ability to create bi-directional interfaces to proactively manage program integrity by communicating regularly with credentialing agencies and obtain information regarding criminal activity early.

Business Relationship Management

Description:

The Business Relationship Management business area is currently represented in many States as a component of Program Management. It is shown here as a separate business area because collaboration between in-State agencies and inter-State and Federal agencies is increasing in importance.

This business area owns the standards for interoperability between the agency and its partners. It contains business processes that have a common purpose (e.g., establish the interagency service agreement, identify the types of information to be exchanged, identify security and privacy requirements, define communication protocol, and oversee the transfer of information).

Business processes include:

- Establish Business Relationship
- Manage Business Relationship
- Manage Business Relationship Communication
- Terminate Business Relationship

Findings:

Colorado's Business Relationship business processes are mainly manual. However, the process of implementing the agreements with other agencies, contractors and providers is largely standardized and coordinated within the agency. Currently, the Department does not maintain a central and secure location to manage the exchange of data.

MMIS Procurement Impact:

Colorado's MMIS that includes a robust data warehouse and ability to support bi-directional interfaces to secure Department managed electronic data sites. By managing their own location(s) the Department would be able to maintain better control over data and data access provided under the business relationship agreements.

Managed Care

Description:

Colorado's Medicaid Managed Care documentation covers applicable business processes from each MITA business area as they apply specifically to the Managed Care program. This section addresses findings and MMIS impacts as when the process differs from the Fee-for-Service program. The Managed Care Use Cases from the Use Case Report detail any business processes that are unique to the Managed Care program and differ from the Fee-for-Service program.

Business processes include:

- Member (Client) Management: Determine Eligibility Enroll Member, Disenroll Member
- Provider Management: Enroll Provider
- Contractor Management: Award Administrative/Services Contract, Manage Administrative/Services Contract

- Operations Management: Prepare Capitation and Premium Payment, Manage Payment Information, Member Payment Management
- Program Management: Manage Rate Setting, Develop and Maintain Benefit Package, Perform Accounting Functions

Findings:

Findings related to Colorado's Managed Care business processes are largely the same for: Contractor Management, Member (Client) Management, Business Relationship Management business areas.

Currently, the MMIS does not support the needs of Managed Care program. Tracking and reporting on encounters, setting rates and creating benefit packages require a large number of workarounds that, while some are automated, still create unnecessary manual processes that are not present for many Fee-for-Service (FFS) business processes. Currently, an Administrative Services Organization (ASO) performs CHP+ claims processing and adjudication and the information is not included within the MMIS.

MMIS Procurement Impact:

Consider a new MMIS that is flexible and can be configured to manage rates, pricing logics, edits and payments based accurately regardless of Managed Care program (based on encounters), CHP+ or FFS. Within the MMIS, data should be captured for all Managed Care Organization (MCO) utilization just as it is currently collected for FFS (e.g., MCO drug utilization information).

7 – Procurement Recommendation

This section contains the recommendations driven by the alternatives analysis process, including the procurement approach and MMIS improvements and enhancements. The recommendations are based on both the alternatives analysis scoring results, as well as procurement best practices identified in our research.

7.1 – Recommended Procurement Approach

The Department should utilize an objective-based procurement, focusing on objectives, outcomes, CMS certification (funding) criteria, services, and performance measurements. This includes the following:

- Use objectives, principles and desired outcomes that define the "what" of a procurement, instead of defining details of the process for a vendor to follow (the "how") is an Objectives-based approach.
- Develop objectives for contract, financial, management, technical, life cycle, and business (system and operations) areas.
- Define high-level objectives and align vendor performance requirements with strong performance standards and accountability language.
- Use Statement of Objectives (SOO) in conjunction with required technical, business and operational requirements.

By focusing on an objectives-based approach, vendors will be free to propose innovative solutions for a suite of applications, or components, to serve as a "best of breed" MMIS. If there are specific Colorado requirements that do not have flexibility in terms of process and/or implementation, this can be stated in the RFP for clarity. For outcomes that are not specific, allow vendors some freedom for creativity in terms of their system, services, and implementation approach and suggested timeline (within certain parameters). Therefore, some vendors may propose a solution that falls somewhere within the spectrum of the viable options. Based on the final scores for the alternatives and the overall ranking, the Department should pursue a 'hybrid' approach that will primarily encompass a more conventional solution for Option 1, while incorporating as much innovation as possible and

laying the foundation for innovation and multi-state collaboration for future procurement considerations.

As a result of the facilitated alternatives analysis process, stakeholders determined that it would also be highly advantageous to publicly release the procurement strategy prior to releasing any of the related RFPs. This will allow vendors to provide feedback regarding timeline and other requirements prior to finalizing the final strategy. Public Knowledge will work with the Department to develop a procurement strategy that can be released to the vendor community.

Although the Department may wish to pursue a "best of breed" system, the Department should also be cautious about the number of contracts that can be effectively managed. As a result of our research, the project guiding principles, discussions with leadership, and the alternatives analysis process, we suggest considering the following separate components within the MMIS procurement:

- **Separate the bid elements for the core MMIS functions and fiscal agent services.** Using the objectives-based procurement approach, the Department should consider having two bid elements for core claims processing functionality and fiscal agent services. Public Knowledge's preliminary recommendation is to combine both elements within a single RFP, giving vendors the option to bid on one or both elements. However, the Department has indicated an interest in separating the core MMIS functions and Fiscal Agent Services into two separate RFPs, with the option of releasing the core MMIS RFP first. If the core MMIS RFP were released first, the Department would evaluate the responses, award the contract and then release the Fiscal Agent RFP. This strategy would position the new Fiscal Agent to take over the old system before the new system is implemented, allowing for a transition period. There are some risks associated with this strategy; the largest is that it could limit competition within the vendor community.

  The procurement of the MMIS and fiscal agent services could be separate bid elements of a single RFP or separate RFPs. The Core MMIS Solution could be implemented in two phases: Phase 1 consisting of capabilities that meet current processing capabilities (i.e. basic functionality to pay claims and be compliant) and federal certification requirements; Phase 2 would entail changes to meet future processing capabilities. We

suggest that Phase 1 be completed within 36 months, followed by Phase 2 implementation 12 months later. The first 6 months of Phase 1 should be specifically dedicated to planning and business process re-engineering. As stated previously, the Department should consider training staff to conduct business process review and redesign efforts or utilizing an independent vendor experienced in business process redesign to ensure process changes best reflect the needs of the state and not the DDI Contractor. If there are separate RFPs for core MMIS and fiscal agent services, the fiscal agent services implementation time line could also be split out separately (and implemented earlier), as discussed above. In either case, the Department should consider incentivizing the contractor(s) for early implementation. The Department will need to determine the specific components that will be included in the core MMIS. The final decision will be made after the Department receives feedback from the vendor community as a result of releasing the procurement strategy options.

Although the Department would like to explore the option of releasing a separate EDI (Electronic Data Interchange), we recommend that the Department include EDI functionality in the core MMIS RFP. This recommendation is based on the following factors:

- EDI functionality is typically a standard component for modern solutions
- The overall cost resulting from separate EDI and core MMIS RFPs will be higher because both vendors will include the cost of the interface development and maintenance, as well as the required test environment interface(s). There would also be additional costs associated with the monitoring and management of two contracts instead of one.
- There is limited competition among EDI vendors; most currently contract with MMIS vendors to provide an EDI front-end solution.

Some states have been able to implement in less than 36 months, but not without major processing workarounds. During the demonstrations, it was apparent that some vendors have new systems to offer but do not have the fiscal agent experience for business operations. Private payors claim to be able to implement a new program into a commercial claims processing system in about 12 – 18 months, which is described in

Option 2 as brokering claims processing services instead of acquiring a traditional MMIS claims processing system. Such an approach would likely require extensive business rules changes on the frontend in order to meet the 12 – 18 month schedule.

- **Separate the bid elements for Business Intelligence.** The Department should also consider delineating the procurement process for Business Intelligence solutions from the core MMIS components. Business Intelligence includes data warehouse and decision support system functionality (which would include the SDAC). These solutions have been proven to have shorter implementation timeframes (12 – 24 months), depending on the scope, and may cost anywhere from $10 to $50 million. Additionally, the Department should consider an enterprise business intelligence solution, which could help fold in other Medicaid and program data typically not found in an MMIS to support enterprise decision-making. An enterprise approach could prove to be somewhat longer to implement and will fall on the higher end of the cost spectrum. Many recent procurements have separated this functionality from core MMIS procurements due to the condensed implementation timeframes and increased likelihood of successful implementation. In addition, many vendors have developed proven enterprise solutions to support Medicaid and other health and human services programs. If the Department considers an enterprise approach, it should be completed in increments, starting integration with the current MMIS within about 12 months.

  The Business Intelligence Services could also be implemented in two phases: Phase 1 would implement the data warehouse and decision support system and integrate it with the current legacy MMIS in 12 months; Phase 2 would entail integration of the solution with the new Core System in approximately another 12 months.

- **Implement pharmacy benefit management (PBM) system and supporting services on its own schedule.** This is another example of a system that is usually implemented in less time than a traditional MMIS and can help foster an environment of successful implementations. Functionality would include point of sale, pharmacy benefits management and Medicaid pharmacy services. Pharmacy services should include Preferred Drug List (PDL) and Supplemental Rebate Program functionality, and could be conducted within approximately 6 – 12 months of completing requirements. The Department should also consider implementing the components for provider

enrollment and verification very early in the schedule. This could be implemented on the same schedule as pharmacy systems.

The contractor would be responsible for delivery of the Pharmacy System components for point of sale, pharmacy benefits management and for the associated Medicaid pharmacy services. This implementation could contain additional supporting services as well. The Pharmacy System and Supporting Services could also be implemented in two phases: Phase 1 would consist of implementing the pharmacy systems and integrating them with the current legacy MMIS. We suggest that the contractor be prepared to conduct pharmacy services within 15 months; Phase 2 would require integration of the Pharmacy Systems with the new Core MMIS Solution.

Although the Department has made a decision regarding the potential procurement strategy options, there are still some specific procurement-related considerations that need to be addressed. Once the procurement strategy options are publicly released and feedback is received from the vendor community, the Department will make a decision regarding the final strategy, which will include the number of RFPs to be released, the functionality that will be included within each RFP, and the identification of existing contracts that should be rolled into this procurement (i.e. Web Portal, drug rebate in PDM, etc.). Public Knowledge will continue to facilitate strategy dicussions with the Department until a final decision is made.

7.2 – Recommended MMIS Improvements and Enhancements and Required Changes to Meet MITA Roadmap

MMIS improvements and enhancement information are highlighted in section 3 and section 6 of this report.

7.3 – Recommended Procurement Timelines

This section contains a sample timeline, which will be updated, depending upon final decisions made during the alternatives analysis process. Based on our preliminary recommendations for the Colorado MMIS procurement, we are proposing a combination of three timelines that will accommodate the preliminary procurement recommendations. The suggested implementation timeframes are based on industry averages and data collected

during our research.[12] The timeline is provided as a sample until final decisions are made on the procurement strategy and MMIS option. The overall objective of this timeline is to convey a potential phased implementation strategy.

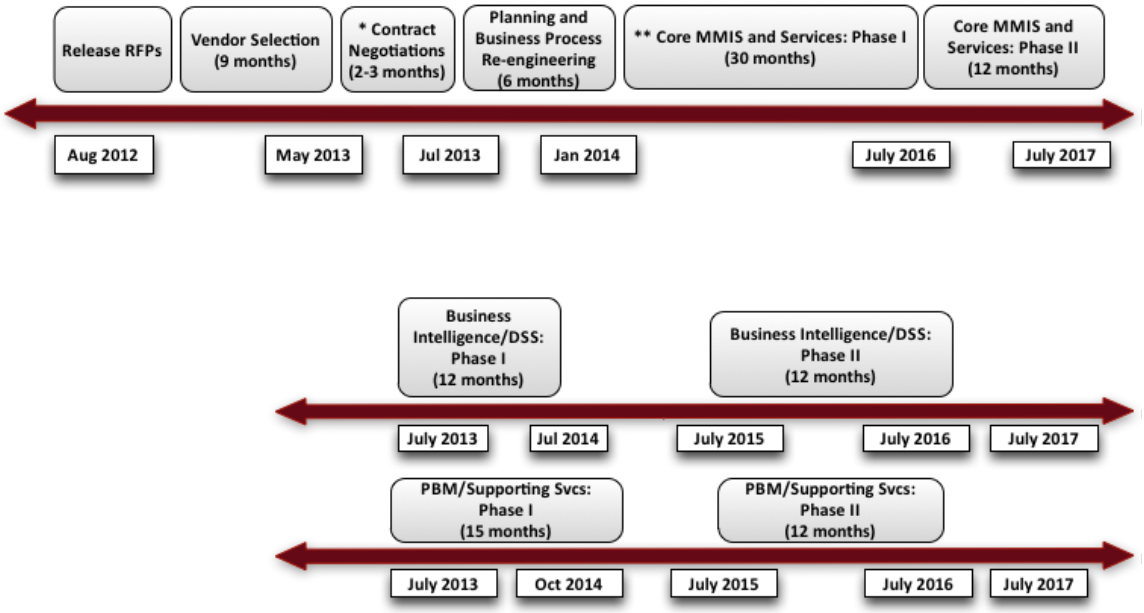

Figure 15 – Sample Timeline

* Contract Negotiations is estimated for purposes of illustration. That end date will ultimately drive the project start date for each phase.

** Core MMIS and Services will likely be a single RFP, but potentially contain multiple bidders (Core claims and Fiscal Agent Services). Core MMIS Phase 1 includes functionality necessary to pay claims and be compliant.

[12] Phased approach similar to Arkansas' procurement strategy released in January 2012

Appendix A – State Research Results

Table 18 – Research Summary Table

**** State Research and analysis required by RFP***

***** Not Implemented (NI)***

State	Basis for Research	Procurement and/or system Status	System/Vendor(s)	CMS Certification Status	Cost Information	Other Notes
AL	Recent Implementation	System went live in February 2008	HPES: Interchange Fiscal Agent Operated by HP Enterprise Svcs	2010	DDI approximately $25 million $111.4 Million over contract	
AK *	Recent Procurement; DDI in process	ACS assumed contract for Operations in January 2009	ACS: Health Enterprise Operated by ACS	NI **	DDI approximately $32 Million (firm fixed price contract)	Last go-live projection was July 2011
AR	Recently Cancelled Procurement; however, they have indicated that they will reprocure soon	Just cancelled procurement. They plan to re-procure with the help of a procurement consultant	HPES: Legacy System Fiscal Agent Operated by HP Enterprise Svcs	June 1986	NA	First procurement was 23 or 24 RFPs. The State plans to seal the files, reconfigure the specifications, and reissue two (2) new requests for proposals (RFPs). One RFP will include the Project Management Office and the other RFP will be for the MMIS Solution, which will include the Core, Products and Professional Services.

AZ	Use MMIS jointly with HI		State Operated by AZ (Managed Care) State Operated by AZ (FFS) Fiscal Agent Operated by ACS (PBM and Other FFS FA Services)		Feb 3, 2009: ACS received $21 million 18-month contract renewal with the Hawaii DHS to provide FA services.	Contract Start Dates: Managed Care - 12/1/2000 FFS - 11/1/2002 ACS - 01/01/2009
CA *	One of the most sophisticated contracts Currently in DDI with new ACS system	ACS assumed responsibility as Fiscal Agent in June 2011 as prime vendor	Current System: HPES Legacy DDI: ACS: Health Enterprise Operated by ACS	NI **	$1.6 Billion over 10 years	ACS partnered with IBM and CGI to form the Medi-Cal Business Partnership (MBP), with contract valued at $1.6 Billion over 10 years
CT	Using transferred/ modified system	Transferred and modified by EDS, now operated by HPES (2005-2014)	Fiscal Agent Operated by HPES	2009	Estimated costs were $24 Million Ongoing Maintenance and Ops costs are approx. $18 Million/yr	Current system was procured in 2005 Leveraging SOA
FL	Recent Implementation	System went live July 2008	HPES: Interchange Fiscal Agent Operated by HP Enterprise Svcs	July 2010	Unknown	
HI	Use MMIS jointly with AZ		State Operated by AZ (Managed Care) State Operated by AZ (FFS) Fiscal Agent Operated by ACS (PBM and Other FFS FA Services)		Feb 3, 2009: ACS received $21 million 18-month contract renewal with the Hawaii DHS to provide FA services.	Contract Start Dates: Managed Care - 12/1/2000 FFS - 11/1/2002 ACS - 01/01/2009

ID	Recent Implementation	Procurement: 2007 PBM: implemented February 2010 MMIS and EDMS implemented: May 2010 DSS: June 2010	Core MMIS and EDMS: Operated by Molina. PBM: Operated by Magellan DSS/DW: Operated by Thomson Reuters	CMS site visit Dec 2011	$40 Million	Integration of several COTS solutions. Core MMIS is a private insurance solution requiring custom coding to meet several State-specific requirements.
IA *	Unique Procurement Approach, Recent Procurement	Accenture was awarded MMIS contract on December 6, 2011; will begin work February 2012	Currently state operated with several subcontractors	NI **	Unknown	Noridian was the System Integrator
KS	Recently implemented major upgrades (for Interchange)	They replaced system in 2003 with HP Interchange System (developed in Indiana, OK).	HPES: Interchange Fiscal Agent Operated by HPES	May 2005	Original Fixed Bid $21.5 Million, Final cost with Scope of work increases was $45 Million	2011 APD indicates that the enhancements will begin to move KHPA from current level two capabilities to level three MITA maturity level in the business area.
LA	Recent Procurement	CNSI awarded MMIS contract for system and operations in June 2011.	Currently Operated by Molina	NI **		CNSI is prime contractor; CNSI for DDI, but Noridian will assume Fiscal Agent Operations.

ME *	Recent Implementation	Implemented in September 2010	Molina: HealthPAS transfer from WV DSS: Thompson Reuters	Dec 2011	$36 Million (original estimate was $26 Million), includes 15% hold-back until certified CMS certification will allow Maine to claim 75% reimbursement for ongoing operations retroactive to September 1, 2010 – the date that the system began processing claims	DDI planned for 24 months, actual was 30 month
MD	Recent Procurement	MMIS Contract awarded to CSC in December 2011 Prior to procurement, system used was a 1992 bid transfer from FL	CNSI: eCams DDI PM/FA Operations: CSC	NI **	Unknown	DDI is planned for 30 months DHMH is in the process of having contract discussions with the contractor recommended for award for the Medicaid Enterprise Restructuring Project (MERP) MMIS Replacement contract.
MA *	Recent Implementation	System went live in May 2009	HPES: Interchange Fiscal Agent Operated by HPES	Aug 2011	Unknown	DDI was 50 months
MI	Recent Implementation	Last procurement: March 2006 System went live in September 2009	CNSI: Champs & eCams State operated	Sep 2011	Average annual ADP costs were $20 Million with an additional $15 Million in non-APD costs Annual operations and maintenance costs are approximately $16 Million	

MT *	Recent Procurement	The contract has been awarded to ACS and they are currently in contract negotiations for ACS Health Enterprise and Ingenix DSS.	ACS: Omnicaid Currently Fiscal Agent is ACS	NI **	$57,411,989 Million for DDI Operational costs are dependent on the number of participating providers. Breakdown is below: 1 - 250 providers - $15,000/month 251 - 500 providers - $18,750/month 501 - 750 providers - $20,833/month Over 750 providers - $25,000/month	
NE *	Cancelled re-procurement; in process of re-procuring	Project was cancelled 3-4 months post kick-off. Currently doing MITA assessment, will re-procure Q2 or Q3 2012.	Internally custom built system (mainframe-based) State operated		Unknown	Forethought (prime contractor), Microsoft, and Noridian partnered. Microsoft was going to modify the system and Noridian was going to manage implementation.
NH *	Recent Procurement; DDI in process	Last procurement - January 2006 System is not yet implemented.	ACS: Health Enterprise	NI **	Planned implementation cost is $32 Million (originally planned $26 Million) with $15,000/month for 1-250 providers for ongoing operations and maintenance.	There have been significant delays in DDI. Will be first state to implement new ACS Health Enterprise system

NJ	Procurement in process	In Procurement now; RFP to be released January/February 2012.	Legacy Unisys System (transfer from LA), operated by Molina	1991	Cost information not available from State contacts	Procurement strategy is very MITA focused, as well as strong emphasis on CMS 7 standards and conditions. Adaptability and flexibility are two other key criteria.
NM	Potential partner in multi-state consortium.	Transferred from Colorado, implemented in 2002 by ACS (with options through August 2013). Procurement in process for operations only (couldn't extend contract beyond 2013) – did not consider replacing MMIS. Will need to submit IAPD for replacement system by June 2014	ACS: OmniCaid Fiscal Agent: ACS		Ongoing maintenance and operations are $4 Million/year	RFP was issued in January 2011. New contract is being finalized with an anticipated effective date of March 1, 2012 and an operations date of January 1, 2013. Factors influencing the procurement strategy include: 5010 and ICD-10
NV	Recent procurement; Takeover with no enhancements	Magellan (First Health) MMIS/PBM implemented in 2003. HPES took over the system and fiscal agent services in December 2011.	HPES system and Fiscal Agent is HPES	2003	Implementation costs are unknown; ongoing costs are 1 - 250 providers $15,000/month	The takeover took officially 9 months - unofficially 11 months.

NY	Recent Procurement	A new RFP was suppose to be released in June 2010 to replace the system; the state pulled this back after release.	CSC: Transcend (version 1) Fiscal agent operated by CSC	May 2006	Unknown	The eMedNY contract provides no planned downtime for system maintenance. DOH can charge CSC as much as $2,000 per minute of outage. CSC spent a month running a simulated production environment in which system failures were created intentionally so that the team could practice recovering from them.
NC	Recent Procurement; DDI in process	Go-live scheduled for August 2012	CSC: Transcend Fiscal Agent operated by CSC Previous Fiscal Agent was HPES (MMIS	NI **	Cost information is unknown; however, bids were approx. $69 to $76 Million	Procurement strategy was unique - more focused on federal points rather than line items. CMS for their region loved their approach. Certification scheduled for February 28, 2013
ND	Recent Procurement; DDI in process	Projected April 2011 per current APD; no valid revised data available.	State Operated; ACS: Health Enterprise (DDI) DSS: Thompson Reuters	NI **	Estimated implementation costs were $62.5 Million	Procurement occurred in 2006 There have been significant delays in the DDI

OH	Recent implementation	Procurement 2007; Implementation 2011	HPES: Interchange (DDI) ACS: PBMS ACS: Case Mgmt System Will be State Operated	No	APD approved for approximately $250 Million. The total cost includes State resources as well. HP implementation costs: $60 Million for phase 1; $15 Million for phase 2; and $2 Million for other services. Changes drove cost to over $75 Million. Needed another $10 Million for initial operational costs.	Implementation was the baseline system from FL. System will be fully state operated by June 30, 2013. Implementation went smoother than they anticipated. The biggest area in which they have buyers' remorse is that business transformation is happening faster than system evolvement. DDI took four years, and may not be able to meet all business needs. 4 year implementation
OK	Recent implementation of upgrades Combined eligibility and MMIS system - prior to CMS offering the 90% match	Legacy MMIS was mainframe. HPES transformed into web-based client/server architecture system. Contract extension in 2007 for HPES system upgrades	HPES: Upgrades to Interchange Fiscal agent operated by HPES (since 2002)	2003	$59.1 M for 3 year contract extension for system upgrades	Upgrades for (1) SoonerCare Medicaid online enrollment, eligibility determination, and claims process, (2) A call center and internet to provide desk support for members and providers, (3) A web-based member portal allowing Oklahomans to apply for and track benefits online, (4) An upgrade to the existing web-based provider portal, (5) Assistance to the state to add new international classification of diseases-10th Revision (ICD-10) medical coding features and information on federal HIPAA 5010 requirements.

						Received 'Early Innovator' grant for design & implementation of IT infrastructure needed to operate a Health Insurance Exchange.
OR *	Recent implementation	EDS implemented in the 1980's Implemented new system (HPES InterChange) in December 2008; which was transferred and modified by EDS/HPES.	EDS: Legacy System EDS/HPES: new system State operated; HPES is responsible for Operations and Maintenance	No	Implementation was well over $50 Million Maintenance and Operations is $64 Million over 5 years (approx. $12.8 Million/year)	System was transferred and modified from OK. Extended project time line 3 times and CMS denied last extension request. HPES said DDI could be completed in 2 years, but that was not realistic. Received 'Early Innovator' grant for design & implementation of IT infrastructure needed to operate a Health Insurance Exchange.
RI *	Early innovator for Health Benefit Exchange	Original MMIS implemented in 1993 HPES contract for takeover services in July 2005	Fiscal agent operated by HPES	No	Unknown	

SC	Procurement in process Currently in procurement. Targeting Nov 1 2012 for contract start date	Contracts: MMIS – 2005-2008 (2010 with 2 yr extension option) MEDS – 2006-2008 (2011 with 3 yr extension option) DSS – 2005- 2006 (2010 with 4 yr extension option) TPL - 7/1/2006-6/30/2011	Homegrown Mainframe No FA - Clemson will continue to host new system Clemson Univ (MMIS) Clemson Univ (MEDS) Thomson/MEDSTAT (DSS) ACS (TPL)	1982	Unknown Pharmacy is approx. $35 Million for 5 years and $1.5 Million for the implementation	30 yr old mainframe system that is 'home-grown' and operated by Clemson University. Some of the code was from legacy MN system and it has some home-grown web portals since. RFP is very SOA oriented
SD	Failed implementation with CNSI; contract cancelled in October 2010	1978 Legacy mainframe system programmed in Cobol; was certified in 1981 Contract awarded to CNSI for replacement in 2008	CNSI: eCams DDI State Operated	Legacy 1981 New system: NI **	Original projected costs was $62 Million	RFP contained approximately 3,200 system replacement requirements Contract with CNSI cancelled in Oct 2010 due to undisclosed reasons. State is not releasing any information about the MMIS cancelled contract with CNSI due to ongoing litigation. State intends to complete implementation independently; CMS may intervene to get system up and running.
UT	Procurement Planning	Legacy System transferred from Iowa in the 1980's Pharmacy and Data Warehouse have already been replaced and will not be replaced in upcoming	State Operated	1980's	Unknown	Pre-Payment Editing System – operating since Dec 2010 Fraud and Abuse Detection System (FADS) – requirements for a FADS tool will be incorporated with development of new MMIS

		re-procurement. RFP to replace system to be released in 2012.				replacement Point of Sale (POS) and Drug Rebate Management System (DRMS) – contract awarded to Goold Health Systems (GHS); POS functionality will be in production by January 2012. The first DRMS cycle will begin with the January-March 2012 claims data. Data Warehouse – The DW upgrade was completed in February 2011 and is in productions Core MMIS replacement – The Dept. received $3 Million in general fund in FY11. Anticipate release of RFP for IV&V early 2012
WA *	Recent implementation (and CMS certification); First 100% web-based system	Procurement in 2004; Implementation in May 2010	CNSI: eCams Fiscal Agent (maintenance) is CNSI State operated	July 2011	Cost was approximately $136 Million with a 90% federal match. Original estimate was $88 Million. Operations costs are $2.5 Million per month.	Transferred and modified from the state of Maine, estimate is that 80% of system was custom built for Washington. DDI was 64 months; initial estimate was 30 months.

WV	Cancelled procurement due to technical flaws in specifications	RFP cancelled September 1, 2011 due to technical flaws in the specifications; will be re-bid in 2012	Fiscal agent operated by Molina Information Systems	NI **	N/A	Technical proposals were received from the following three vendors: • ACS • HP Enterprise Services, LLC • Molina Medicaid Solutions Proposal evaluations were in progress at the time of RFP cancellation.
WI	Recent implementation	Procurement in 2005; Implemented 2008	HPES: HP InterChange Fiscal Agent is HPES	Dec 2010	Original Fixed Bid $21.5 Million, Final cost with Scope of work increases $45 Million. MMIS Fiscal Agent contract Annual Fixed price is $32.4 Million plus postage as pass through. The contract is for MMIS operation/modification and full scope of FA services. No major subcontractors, no performance incentives, and no transaction based pricing.	Original DDI schedule was 24 months, actual timeframe was 46 months MITA business model was used to organize the requirements and RFP Received 'Early Innovator' grant for design & implementation of IT infrastructure needed to operate a Health Insurance Exchange

WY	Multiple vendors; unique procurement strategy	Takeover procurement occurred in 2008	ACS: OmniCaid Fiscal Agent Operated by Goold Health Systems (PBM/POS)		Not applicable since this was a Takeover.	Transferred Florida system (didn't procure and modified). Open to bids for modifications. Defined own requirements. Mainframe MMIS; web-based portal for claims processing for HIPAA transactions. Three separate contracts for the Dental, Claims, and Pharmacy. Wanted a best of breed.

Appendix B – Research Protocol

#	Questions
1	Origin of Legacy System (e.g., transfer, new build, etc.)/year
2	Who maintains and operates the system (state operated vs. fiscal operated)? If operated by a Fiscal Agent, who is it?
3	What is the System/Platform (including web-based or mainframe)?
4	Would you recommend the system and/or the fiscal agent?
5	When was the last procurement? If currently in procurement, what stage is the state in?
6	What factors or considerations influenced your procurement strategy for the most recent (or current) procurement?
7	What are your most recent procurement and implementation lessons learned (i.e., where is state in process, when did they list procure system, etc.…)?
8	How did your most recent procurement allow you to progress further along with your MITA maturity?
9	What is your MITA Maturity Level (business, information, or technology areas)?
10	Is system certified by CMS? If so, when?
11	Are other states using same system for Medicaid?
12	Did the State have separate vendors for development of subsystems, such as pharmacy systems?
13	Is system COTS or Custom/Internal Development?
14	Is the system Medicaid Only or an integrated System with other State and/or Federal programs and systems?

#	Questions
15	Does system leverage SOA?
16	What are the disadvantages of the system?
17	What are the primary benefits of your current system?
18	What were the estimated implementation costs?
19	What are the estimated Ongoing Maintenance and Operations costs?
20	If possible, we would like to obtain a copy of the state's IAPD for sample purposes. Are you able to help us with this?

Appendix C – MMIS Interfacing Systems

SDAC Data Warehouse and Portal

The Department recently contracted with Treo Solutions to provide an analytical database to support the Medicaid Accountable Care Collaborative (ACC) Program.

The Statewide Data Analytics Contractor (SDAC) and the information provided by the SDAC will be an essential element in the management of the ACC Program. Central to the overall management of a client's health care is the availability and analysis of critical data to better align provider payments with health outcomes as well as identify appropriate interventions that can dramatically improve the health of Medicaid Clients. As a result, the Department recognized the need for a contractor to support the ACC Program through statewide data collection and analytics. One of the ways to promote accountability in the health care system rests on developing better performance metrics. Through data analytics and reporting activities, the SDAC will assist the Department in assuring that the ACC Program goals are consistently met in an effective and efficient manner.

According to the SDAC Request for Proposals, the responsibilities of the SDAC will include:

Client Selection for Program Enrollment: The SDAC will develop consistent methodology to be used for the selection of Clients appropriate for enrollment for the

ACC Program and provide list of selected Clients.

Data Repository: The SDAC will build, operate and maintain a data warehousing capability and capacity that integrates data from a variety of data sources, including claims data from the Department's Medicaid Management Information System (MMIS), the Colorado All Payor Claims Database (CAPCD), and the Colorado Regional Health Information Organization (CORHIO) Health Information Exchange (HIE).

The SDAC will provide a scalable and open architecture, which can interface with other systems in the future as required.

Data Analytics and Reporting: The SDAC will provide sophisticated analytics on behalf of the Department, including, and not limited to: predictive modeling to create patient risk

scores, performance monitoring and benchmarking, evaluating utilization variances, and creating provider profiles. This also includes building advanced reporting capabilities that will include both a customized and a standard library of reports.

Web Access: The SDAC will develop and host a web portal that provides reports and other information to designated stakeholders that includes ongoing help desk support for end-users.

Accountability and Continuous Improvement: The SDAC will be expected to collaborate with other partners in the ACC Program to learn, improve, and identify and share best practices (nationally and within the ACC Program). In addition, the SDAC will calculate cost data for the ACC Program, and identify areas with the largest cost saving potential.

Future Vision: Success of the ACC Program is based on the observation of improved outcomes to patients in Colorado. The Department discussed consolidating the SDAC and DSS into a unified system to provide business intelligence. This consolidation will provide measurable, actionable analytics such that Medicaid client, provider, and program performance can be meaningfully impacted for all Colorado Medicaid patients.

Paramount to the success of the SDAC and improving overall efficiency is the cohesive integration of Department enterprise platforms and real-time interfacing to external sources through HIE. Such enhancements include:

- Full integration with the Department Decision Support System (DSS). Utilizing DSS business objects, analysis tools, and reporting capabilities will assist in aggregating and constructing longitudinal views across disparate data sources, offering significant operational efficiencies and enhancing overall accuracy.
- Interface with the Department Business Utilization System (BUS). Active case management and clinical data repositories can provide invaluable data with which to augment traditional claims data. Utilizing the advanced analysis tools associated with the SDAC and DSS will introduce significant cost savings and operational efficiency opportunities within the Medicaid Long Term Care services.

Interact with the State Health Information Exchange (HIE), Health Insurance Exchange (HIX), Colorado Department of Public Health & Environment (CDPHE), and the Colorado

Immunization Information System (CIIS). It is possible that the State HIE can provide normalized, real-time data feeds to each of these systems.

Provider Web Portal

The Colorado Medical Assistance Program Web Portal (CMAP Portal or Web Portal) is a web-based application that interfaces with the MMIS and other Web portals. It enables Medicaid providers and other entities to electronically send and receive secure HIPAA and non-standard transactions to the Department's MMIS and to verify client eligibility via information sent from Colorado Benefits Management System (CBMS) to the MMIS.

The Colorado Web Portal RFP was released in November 2011. The contract with the current contractor, CGI Federal, Inc. ends on June 30, 2012. The Department is looking for an organization to provide services to operate and maintain the Web Portal, and be able to transition into the new within that time constraint. The Governor's Office of Information Technology (OIT) is currently the hosting contractor responsible for the infrastructure supporting the Web Portal application, including the procurement of hardware and software, network configuration and maintenance connectivity with ACS.

MMIS Interfacing Transactions:

- Ability to submit claims for processing and payment
- Claim inquiries
- Ability to request client eligibility verification
- Eligibility inquiries
- Ability to request prior authorizations (PAR)
- PAR inquiries

Other Functionality

- Claims management
- Data maintenance
- Standardized reporting

Users are also able to access the Department's Benefits Utilization Services (BUS) and federal system for Systematic Alien Verification for Entitlements (SAVE) via the Web Portal. As requirements for other Department and federal initiatives are developed, the Web Portal may be required to allow access to new secured Web Services and be capable of interfacing with additional MMIS transactions implemented by the new contractor or third party vendors.

All-Payor Database

As the push for health care reform becomes more intense across the United States, there becomes an increasing need to develop tools that enable an analysis of health care delivery.

As a result, All Payor Claims Databases (APCDs) are being deployed. These databases contain aggregated claims data from private and public insurance carriers. APCDs have the unique ability to longitudinally track health care delivery across carriers, facilities and providers, identifying important trends and tracking costs. In addition, APCDs are used to examine the impact of reimbursement methodologies, study public health interventions, and examine how health care resources are utilized in terms of quality, outcomes, and/or costs.

Eleven states across the United States have already implemented an APCD. These implementations vary greatly in terms of data collection scope, exposure of data, and deployed applications and reports. For example, two of the eleven states collect data from insurance carriers on a voluntary basis only. Five additional states, including Colorado, are in the process of implementing an APCD. See the table below for specific details.

Table 19 – State APCD Implementations

APCD Stage	Participating States
Operational - Mandatory	Maine, New Hampshire, Vermont, Massachusetts, Maryland, Tennessee, Minnesota. Kansas and Utah
Operational - Voluntary	Wisconsin and Washington
Implementation	Rhode Island, New York, West Virginia, Colorado and Oregon

What follows is a description of each APCD implementation across the United States (excerpts from the APCD Council website).

- **Maine**: Maine Health Data Organization, Maine Health Management Coalition and the Maine Health Info Center leveraged a voluntary aggregation pilot into a statewide initiative. Large employers needed cost data as well. Carriers were interested in a broader view of utilization across the system. Hospitals wanted a payment website.
- **New Hampshire**: New Hampshire Comprehensive Health Care Information System began accepting claims submissions in 2005 in response to a need for more transparency in the commercial insurance system. The drivers listed in their statute include the provision of a resource for continuous review of health care utilization, expenditures, and performance data by insurers, purchasers, employers, providers and state agencies. Also expressed was the goal to help consumers and employers make informed and cost

effective health care choices. In addition, data were desired for comparison to Medicaid quality, cost, utilization, and price.

- **Vermont**: Vermont's statute indicates that their APCD was created as a resource for multiple stakeholders to measure performance of the health care system. There have also been requests to use the data for modeling Accountable Care Organizations (ACO) through the Health Care Reform Commission and developing population based reports on spending and utilization in the commercial population.

- **Massachusetts:** The Health Care Quality and Cost Council was established to design a consumer-friendly website that would provide transparency about health care costs and quality for the public. The desire to improve health care quality, reduce racial and ethnic disparities and contain health care costs was expressed in their statute. The authority to collect claims data was established under the same legislation that established the Council. Since then, the Division was given authority, under a separate bill, to examine cost containment. Massachusetts began collecting claims in 2008, retro to July 2006. The Division adopted new regulations in July 2010 and includes the collection of medical, pharmacy, and dental claims, and information from member eligibility, provider, and product files encompassing fully-insured, self-insured, Medicare, and Medicaid data.

- **Maryland:** The system in Maryland was set up for policy uses. Transparency applications are limited and physician/provider comparative quality uses are very limited. The APCD is better at supporting system wide comparisons versus quality.

- **Tennessee:** In 2008, the Department of Finance and Administration convened the "Health Quality Initiative", a state and private sector stakeholder group, to discuss how best to measure and report health quality data. The group met for approximately a year before the Division of Health Planning proposed the APCD as a solution. Legislation was drafted with the input of stakeholders and passed in June 2009. Data collection began in the summer of 2010 and is ongoing.

- **Minnesota:** Minnesota claims collection started in July 2009. Privacy concerns have garnered significant attention in this state. In order to receive the authority to collect this data and compel health plans and TPAs to submit, special attention has been paid to concerns about data privacy. Minnesota has narrowed the research purpose to provider

peer grouping to compare on cost, utilization, and quality, and to use APCD pricing data with separate data streams from Health Care Quality Measures Project.

- **Kansas:** The overall goal of the system is accuracy, however, access to the commercial payor data is limited to select individuals and controlled by the Kansas Insurance Department. Kansas Health Policy Authority is currently reporting from the Medicaid and State Employee Health Plan data sets.

- **Wisconsin:** The Wisconsin Health Information Organization (WHIO) was voluntarily created in 2005 by members made up of providers, employers, payors and the state to improve the transparency, quality and efficiency of the health care in Wisconsin. WHIO members and subscribers use the data in the Health Analytics Exchange to identify gaps in care for treatment of chronic conditions, and provide real-world data about the costs per episode of care, population health, preventable hospital readmissions, and variations in prescribing generic drugs. WHIO releases two updates to the Exchange each year, often adding new data contributors with each release. As of the last release (DMV5), the Exchange contains 233.5 million claims for care provided to 3.7 million residents in Wisconsin.

- **Utah:** The Utah All Payor Claims Database became the fifth operating APCD in the nation in September 2009. Participating plans submit enrollment, medical, and pharmacy files starting from 1/1/2007 until they are current. As of November 2011, Utah's APCD includes data from several health plans which cover approximately 2.1 million lives representing 93% of the state's commercially-insured market.

- **Washington:** Puget Sound Health Alliance kicked off in 2004 by King County Executive Ron Sims in response to questions about how to deal with rising rates and how are we sure we are getting good health care. In addition, employers wanted to improve quality and affordability of health care. King County rallied business groups to the table and started the Alliance for a claims database that comprises approximately 65% of the non-Medicare claims in the region. The database currently captures information from 1/1/04 through 6/30/09, representing nearly 2 million lives and approximately 400 million claim lines from commercial insurance, managed Medicaid and Medicaid Fee for Service.

One element that does not vary greatly from state to state is the data being collected from insurance carriers. In most cases the datasets were modeled after ASC X12 datasets. The APCD Council (www.apcdcouncil.org) took advantage of early work done by some of the northeastern states to implement a standard, which other states can now utilize. This was Colorado's approach.

Colorado HB 10-1330 enacted legislation for the implementation of an All Payor Claims Database (APCD) for the State of Colorado. The APCD will collect, aggregate and report on claims data from dozens of insurance carriers, including Colorado Medicaid. A unique element of the Colorado APCD will be the requirement that carriers provide fully identified Personal Health Information (PHI). Few states have been able to overcome this hurdle and having PHI will enable Colorado to effectively track health care data across carriers and facilities, and track costs across episodes of care.

The APCD is a data warehouse, which is a repository that accepts structured health care data, cleanses that data, and organizes these data in a schema that supports online analytical processing (OLAP). This requires transactional processing systems such as the MMIS, traditionally architected using fully normalized data architectures, to be able to produce data extracts in a flat file format.

Inherent in its purpose, the APCD applies tools that enable a risk-adjusted analysis of health care delivery across individuals, providers, payors and facilities.

Future Considerations and Conclusions: Rules published by the Department, effective October 15, 2011, promulgated, in addition to the timing for data submission, the specific data files and data elements that insurance carriers must submit to CIVHC, the administrator of the APCD. The data files and associated elements require the ability to create a flat file extract of medical claims and pharmacy claims, and their associated eligibility and provider data, from the MMIS. These flat files need to be created monthly and transmitted to the APCD via a secure FTP site.

The MMIS must possess a robust reporting capability and the ability to produce a variety of data extracts that support Medicaid program management and the ability to share data with other applications. The APCD Data Submission Guide should be included as part of the

MMIS procurement RFP to ensure that those requirements can be achieved as part of the modern MMIS' decision support system and analytical processing functionality.

Business Utilization System (BUS)

The BUS is a Case Management system for Home and Community Based Long Term Care clients and Nursing Facilities. The ULTC 100.2 is the intake form/assessment that health care providers and/or case managers use for recording daily living scores/acuity scores. The Department maintains the content of the ULTC 100.2 reports in the BUS. Also, the BUS contains Preadmission Screening and Resident Review (PASRR) information, Home Care Allowance and Instrumental Activities of Daily Living (IADL)/basic activities of daily living (ADL) information, and Service/Care Planning for Preadmission Review.

The BUS is a SQL Server based application with a web-based front end that is currently not integrated with the MMIS. The application contains almost 128,000 records, is utilized by more than 900 case managers and more than 52 different agencies. In addition the BUS has a limited provider directory for Nursing Facilities and Case Management agencies.

Future Considerations and Conclusions: Functional assessment data is an especially critical component in effectively managing care delivery for Medicaid long-term care clients. Case managers collect this clinical data set and enter the data into the BUS following the format of the ULTC 100.2. Functional Status data are also collected for certain other Medicaid clients in a paper-based format as part of the Short Form 12 (SF12) and CCAR surveys and sent to external contractors who electronically enter the data. The contractors aggregate the data and send summary reports to the Department.

Although the data serves useful purposes, the utility of the data is limited because it does not give a complete picture of the client's medical history. Because the data is contained in the BUS, or the data is collected manually and summarized, the Department cannot develop a single picture regarding the care that is being provided to an individual, or determine if the outcomes of that care have been successful. Neither functional status nor assessment data is integrated with claims data in the MMIS.

The Department requires a more transparent view of their client's health care history in order to coordinate care more effectively and to ascertain whether Medicaid programs are working as intended.

A patient-centered approach to health care requires a patient-centered view of data. It is critical that the Department store functional status and assessment data in a repository that can be integrated with other Department systems. Long-term care case management technology and the receipt of functional status data should be integrated into the Department's IT infrastructure to achieve a patient-centered approach. Specifically, the BUS should become interoperable with both the MMIS and CBMS to utilize shared services going forward.

CBMS

The Colorado Benefit Management System (CBMS) is the state's integrated eligibility system used to support eligibility determination and benefit calculations the following state benefit programs:

- Medicaid
- Children's Health Plan Plus (CHP+)
- Temporary Assistance for Needy Families (TANF)
- Supplemental Nutrition Assistance Program (SNAP)
- Adult Protective Services
- Old Age Pension
- Aid to the Blind
- Aid to the Needy Disabled

CBMS currently serves 493,000 clients and is used by 3,600 workers around the state[13]. The Colorado Department of Human Services (CDHS) and the Department, in collaboration with the Office of Information Technology (OIT), jointly support the CBMS.

The state contracted with EDS in 2000 to consolidate existing six systems into the single integrated eligibility system, CBMS. Deloitte took over the contract in Spring 2009. In addition to maintaining and enhancing the System, Deloitte developed and integrated the state's Web-based application, Program Eligibility and Application Kit (PEAK), with CBMS.

[13] https://www.colorado.gov/PEAK/about-cbms.html

CBMS utilizes a UNIX client server platform that supports comprehensive rules-based processing. An Oracle database is used to support multiple applications within CBMS, such as Tuxedo, PowerBuilder, WebSphere, and Business Objects.

Current Feeds/Interfaces: CBMS currently interfaces to the state's MMIS to exchange eligibility data with the MMIS and Social Security Administration (SSA). The interface performs several routine batch runs to perform 13 main functions, including[14]:

- Creation of the weekly TPL Resource file
- Sending the weekly TPL Resource file
- Creation of the weekly TPL Carrier file
- Sending the weekly TPL Carrier file
- Receipt of the Provider Demographics file
- Update of the individual MMIS Provider table
- Creation of the Provider Demographics Outcome Report
- Sending the Provider Demographics Outcome Report
- Receipt of the SSA8019 file
- Merge of files
- Creation of the SSA8019 No Insurance or Change of Insurance report
- Generate case alert
- Sending the SSA8019 No Insurance or Change of Insurance report

CBMS also interfaces to several other state and federal systems/databases, including

- Automated Child Support Enforcement System (ACSES)
- Income Eligibility Verification System (IVES)- including the Benefit Data Exchange (BENDEX), Colorado Department of Labor and Employment (CDLE), Internal Revenue Service (IRS), State Data Exchange (SDX)
- Buy-In

[14] Interface Overview: Colorado Benefit Management System. July 1, 2004. Version 4.0

- Child Care Automated Tracking System (CHATS)
- Colorado Bureau of Investigation (CBI)
- Colorado Department of Education (CDE)
- Colorado Financial Reporting System (COFRS)
- Colorado Refugee Services Program (CRSP)
- Department of Revenue (DOR)
- Disqualified Recipient System/Intentional Program Violators (DRS/IPV)
- Medical Eligibility Spans (MEDSPANS)
- State Verification and Exchange System (SVES)
- TRAILS
- Treasury Offset Program (TOP)
- Vocational Rehabilitation (VR)

Future Considerations and Conclusions: From the MMIS perspective, there currently is a 'lag' between eligibility information in CBMS and MMIS: 1.5 days or 3 -4 days if data processing occurs on a Friday. 'Real-time' interfacing or enhanced timeframes for data exchange capabilities would help to limit the lag time between the MMIS and CBMS, reducing customer service complains, help desk tickets, and other political implications (e.g., calls to the governor's office when clients deemed Medicaid eligible do not receive appropriate services).

CBMS staff did not have any additional needs for files/information since the primary role is to feed eligibility info into MMIS.

Appendix D – State and Federal Initiatives and Systems

State-level and Colorado Office of Information Technology Guidelines

The Colorado Governor's Office of Information Technology (OIT) is currently working on a road map for State-level standards for IT, which includes web-based, database, Commercial-Off-The-Shelf (COTS), and Service Oriented Architecture (SOA) standards. Specifically, in relation to this project, OIT plans to: 1) utilize NIEM (National Information Exchange Model) for data standards; 2) define XML standards; and 3) encompass principles of the MITA framework for initiatives aligning with health care in Colorado. The long-term goal for OIT and its data sharing efforts is to standardize statewide enterprise architecture as a means of connecting individual agency objectives to a shared information technology strategy so that the State can realize the return on its IT investments. This work includes aligning vertically-oriented agencies into an enterprise-focused organization, providing governance and oversight of investments, standards, processes, and alignment of business and IT objectives.

The road map, which is targeted for completion in Q1 2012, is based on three key Enterprise areas:

- Single Sign-On
- Master Data Management (OIT is sponsoring the RFP for the start of master data management; anticipated release is for June 2012)
- Identify Management

Where possible, OIT suggested incorporation of enterprise services into the new MMIS. In addition, OIT would like the Colorado MMIS procurement team to consider the following factors as part of the procurement strategy and requirements sessions:

- Focus on Enterprise level synergies to create efficiencies
- Maximize the use of COTS, where appropriate, and promote interoperability between COTS

- Consider the use of Cloud Services
- Master Data Management for client correspondence and other data sharing services. Colorado Information Marketplace will be used for data integration among services, and would be a good point of integration between programs
- Rules engine that could be interoperable between systems
- CBMS/MMIS Integration – Enhanced interoperability between CBMS and MMIS
- Web Services directly to IRS

A recommendation for the Department is to continue ongoing communications between OIT and MMIS project team during the DDI period. Timing of various implementations will be challenging, but open communications can help promote alignment of system efforts.

Alignment of MMIS with State Medicaid HIT Plan

The primary technical strategic initiatives outlined in the Department State Medicaid HIT Plan (SMHP) are as follows:

- Increase provider adoption of Electronic Health Records (EHR) functionality ranging from basic to complex systems;
- Support use of Personal Health Records (PHRs);
- Link HIT adoption to Health Information Exchange (HIE) and demonstrated quality improvement; and
- Leverage and coordinate efforts among state agencies and local HIE initiatives to maximize the value of HIT-targeted federal funding, reducing costs and building efficiencies wherever possible.

To accomplish these tasks, the Department intends to leverage HIE infrastructure to provide Medicaid patients and providers with required information to improve care and reduce program expenditures. By utilizing the recently formed HIT Strategic Planning Committee, the Department can continue to evaluate how Medicaid HIT initiatives, CORHIO initiatives, Medicaid EHR incentive program funding, and Governor's Office of Information Technology processes can leverage their respective funding and infrastructure such that the overall State HIT vision can achieve successful execution.

Recognizing the importance of health care data, information, and systems and their significance in helping achieve statewide health goals, OIT, relevant State agencies, and CORHIO will work together during implementation of this SMHP to design the technical architecture specific to HIT. This work will ensure that the State HIT architecture closely aligns with the statewide enterprise strategy, data model, and IT strategy, and satisfies all enterprise architecture requirements.

Alignment of MMIS with Statewide Health Information Exchange

Statewide Health Information Exchange through CORHIO offers the Department the opportunity to leverage a transport protocol and information exchange infrastructure to enhance and augment existing Medicaid initiatives in a scalable, repeatable fashion, facilitating current and future business requirements. Data from Medicaid can be coupled with data in the HIE to better inform clinical data for patient-centered care and to improve clinical outcomes. Specifically, CORHIO core infrastructure and tools can address the following:

Transport & Delivery:

State HIE targets adoption by 85% of Colorado-based providers by 2015. Assuming these goals are met, CORHIO will play host to the vast majority of all health data within Colorado while maintaining secure connectivity between all participants. Utilizing the CORHIO Secure Grid and Cloud-Based Agent technology, CORHIO offers the ability to not only connect participants, but to route and deliver data bi-directionally between disparate systems. The CORHIO grid eliminates the requirement to maintain separate point-to-point interfaces with any other entity, including health plans, national laboratories, regulatory agencies, public health, and state immunization registries. Secure routing infrastructure is available to be utilized by any complimentary system supporting a service-oriented architecture, promoting leverage and reuse according to the CMS Seven Standards and Conditions. Numerous states have adopted the CORHIO platform to address their data transportation requirements, providing the foundation for reuse of similarly developed solutions.

Data Sharing:

Utilization of State HIE infrastructure and its exposed application programming interfaces, data moving through the system is centrally stored, normalized, and translated, as applicable, to current data exchange standards. This modular approach provides the ability for any system to interact with the exchange and generates a "gold standard" of data not previously attainable. Each contributing organization can supply their unique service and business rules to CORHIO to ensure that data is shared in a predictable, consistent manner. As new standards and requirements are generated, utilizing the Exchange provides a central upgrade point, minimizing the scope of future development and ensuring adherence to evolving industry data standards.

The State HIE also offers full support of the Nationwide Health Information Network (NwHIN) CONNECT, providing the ability for any compliant agency to exchange and share data in a consistent and repeatable manner without requiring uniquely developed interfaces.

Data Maintenance:

Through the use of web service technology connecting disparate State agencies, State HIE can facilitate publish-subscribe models between systems that facilitate the creation of "golden records" to be shared across all platforms. Specifically, this federates maintenance to all contributing systems, mitigating record duplication at the state level. Several of the data types that are affected by this model include:

- Patient Data
- Provider Data
- Licensing and Credentialing Data
- Claims

Data Integrity & Security:

The State HIE utilizes advanced techniques and algorithms for the purpose of matching patient data between disparate systems, far more complex and capable than most in-house systems. Through the use of web services and APIs, external entities can take advantage of these algorithms for the purpose of ensuring "clean" data within their own system. Additionally, CORHIO employs industry-leading standards for the purpose of securing data.

Leveraging the security protocols and secure data warehousing of the CORHIO cloud allows participating agencies to benefit from the continuous monitoring and quality standards associated with stewarding the network.

Acquisition of Hospital Data:

All CORHIO participants acting in the capacity of a health plan can utilize CORHIO for near-real time acquisition of hospital data, including Laboratory, Radiology, Pathology, and Transcription results, Admit/Discharge/Transfer (ADT) feeds, prescription data, and PACS imagery for the purpose of improving claims processing and payment functionality. No other single facility exists for accomplishing this outside of State HIE.

Patient Population Management & Accountable Care Organizations:

While providers pursue alignment with Meaningful Use objectives and seek to improve health outcomes through the formation of Accountable Care Organizations, State HIE can provide alignment with MITA level 4, specifically, the facility for "widespread and secure access to clinical data." By utilizing a centralized repository of clinical data and an infrastructure focused on combining it with claims information, measurable health outcomes and quality measures can be derived.

Care Coordination:

A key component of the CORHIO network is in facilitating secure routing of not only clinical data, but also that of secure messaging between participants. This includes the capability to assist in care coordination between disparate systems and participants. Utilizing CORHIO tools for referrals, secure messaging, and real-time routing of Continuity of Care Documents (CCDs) is in alignment with both the State Medicaid HIT Plan and the MITA Interoperability Condition.

Reporting:

Unified tools and centralized data are paramount to ensure quality, timely reporting. State HIE can not only facilitate the transport of relevant reporting data from various entities, but also provide an aggregated, longitudinal view of data collected from numerous sources, all normalized appropriately.

Personal Health Tools:

Central to all efforts in managing and improving patient care is, of course, the patient. CORHIO plans to offer web-based management solutions for consumers that, when tied to outside systems, can centralize access to clinical and claims data.

Health Insurance Exchange and State Requirements

The Colorado Health Benefits Exchange (COHBE) is scheduled to launch in October 2013 and will establish a marketplace for Coloradans to shop for and purchase health insurance based on quality and price. The COHBE will provide all the functionality of a traditional insurance broker or agent to ensure proper eligibility and guide a consumer through the enrollment process, revolutionizing how coverage is sold. By ensuring the Exchange can fully leverage MMIS functionality, states can utilize MMIS funding to aid with Exchange sustainability.

It is essential, then, that any MMIS procurement includes service functionality and architecture that can be reused by COHBE. Such components include, but are not limited to:

- Web-based Portal Technology
- Eligibility Determination
- Enrollment Management
- Comparative Shopping and Purchasing
- Decision Support Tools
- Customer Contact Center
- Membership Management
- Financial Services
- Broker/Agent Model
- Marketing/Outreach
- Health Plan Interfacing

- Provider Management

Of key importance is the consideration that several state entities, including the Health Information Exchange (HIE), all intend to make use of the same claims data that will support the COHBE. Any centralized architecture that can be utilized by all should be considered and leveraged appropriately as part of the MMIS procurement.

Based on discussions with Gary Schneider, the lead for the COHBE initiative, the timeline for this initiative is as follows:

- Release RFP: January 2012
- Award contract: mid-April 2012
- Project kick-off: May 2012
- System implementation: Oct 2013

Colorado will be the third state to issue a RFP for this initiative, which will help mitigate potential resource contention within the vendor community as the remaining states launch this effort.

The COHBE team is currently working with CBMS to facilitate interoperability. Most interfacing needs of the COHBE will be isolated to CBMS, and will not require any work directly related to MMIS interoperability. The MMIS will need the existing interface to CBMS (for eligibility information), but the COHBE will provide all other information to the MMIS downstream.

One of the key goals is to ensure that the consumer experience is positive; one way to ensure this is to consider a Single Sign-On between the COHBE and the MMIS to streamline the consumer process. In addition, the Department indicated that they would like the ability to do a 'warm hand-off' between the COHBE call center and the MMIS call center.

One potential future interface is interoperability between enrollment and eligibility. If plans can be integrated within the Exchange, this interface would allow people to enroll in a plan (via the Exchange) and then automatically be rolled into the MMIS. The Department indicated that a decision has not yet been made, but that they are open to this option in the future.

See Figure 15 for a visual representation of the COHBE systems interoperability. See Figure 16 for a visual representation of MMIS component integration with the COHBE.

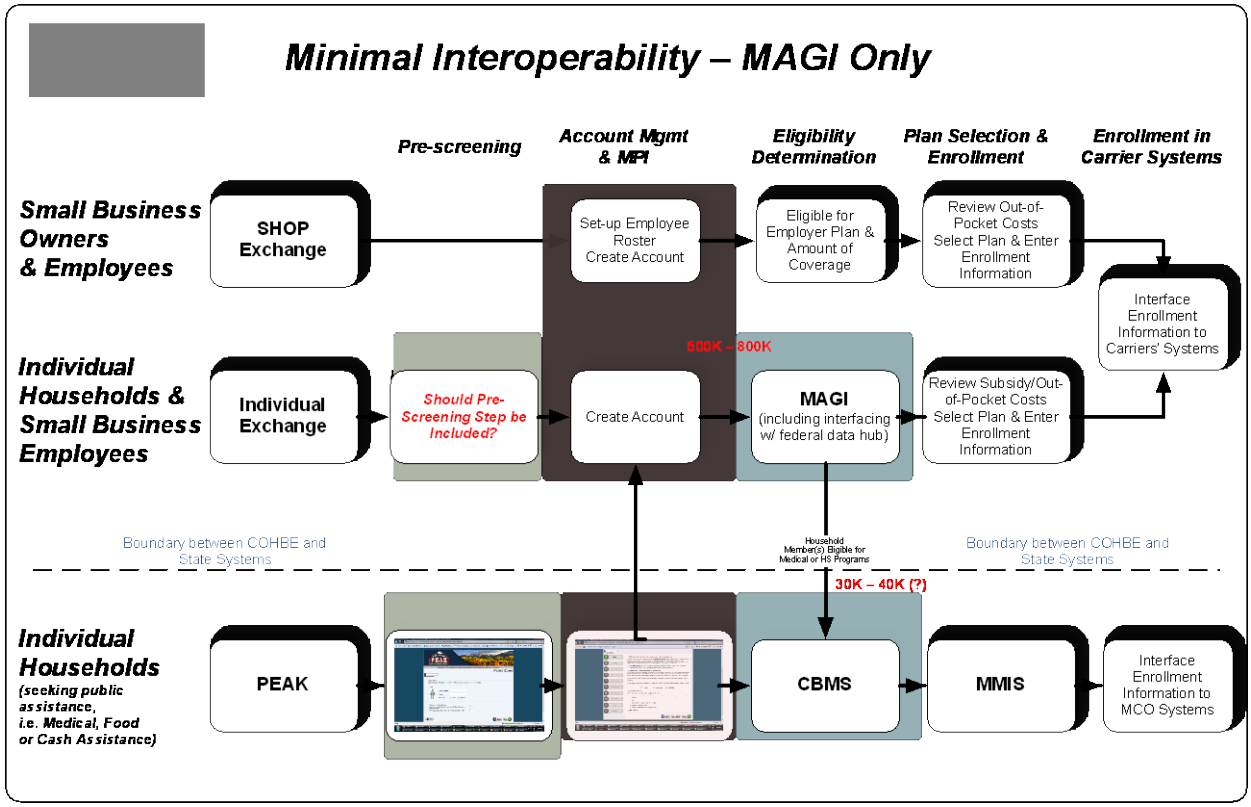

Figure 16 – Planned COHBE System Interoperability

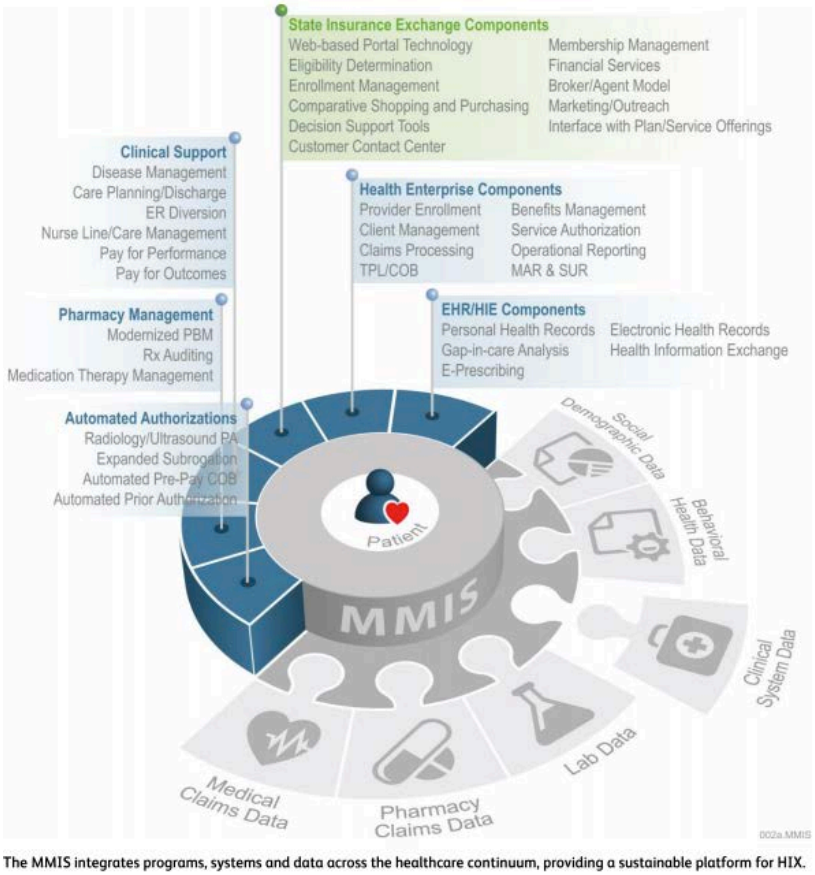

Figure 17 – Planned COHBE System Interoperability

Patient Protection and Affordable Care Act (P.L. 111-148)

On March 23, 2010, President Obama signed into law the comprehensive health reform legislation, the Patient Protection and Affordable Care Act (ACA). Many provisions of the act became effective upon enactment, and requirements of the act continue through 2019. The critical role of state governments is in managing and financing the Medicaid and CHIP Programs. The ACA creates new requirements for expanded coverage and accountability mandates for those programs.

Medicaid is the foundation for health coverage for low-income individuals under health reform. The program is expected to cover an additional 16 million people by 2019. The new law provides a national floor for coverage, eliminates the exclusion of childless adults from coverage under the program and provides states with significant new federal resources to fund the expansion. In addition to new coverage, Medicaid will continue to fill gaps in the

health care system by providing long-term services and supports, assistance to low-income Medicare beneficiaries, and general support for the health care system. The new law includes a significant expansion of Medicaid, an individual requirement to obtain health insurance, and subsidies to help low-income individuals buy coverage through newly established Health Benefit Exchanges. There are also many sections in the legislation that give States the option to implement reform recommendations through demonstration projects or alternative and enhanced delivery systems with enhanced reporting structures. The door is also opened for States to be creative in their adoption of regulations through the development of State administered health plans as an alternative to the Medicaid delivery system.

The ACA will increase the number of Coloradans that are eligible for Medicaid assistance. Additionally, the legislation promotes administrative simplification of the enrollment process and form, promotes increased communication regarding available benefits, and promotes solutions to improve access to care and quality of care. The legislative changes will increase transaction and data volumes and the Department will have to plan accordingly for these increased volumes across various platforms and systems. The most immediate impact will be the implementation of the National Correct Coding Initiative (NCCI) in the current MMIS. States must also create, manage and regulate new insurance exchanges for both individual residents and businesses. As with the other initiatives, changes made to the current MMIS to comply with this legislation should be documented and tracked, as they may result in requirements for the future MMIS. For example, State legislative initiatives such as the Colorado Comprehensive Health Access Modernization Program (CO- CHAMP), the Colorado Health Care Affordability Act through House Bill 09-1293 (CHCAA), and ACC will all have a significant impact on the Medicaid program and the current MMIS. Each of these initiatives will have a set of requirements that detail the changes that are necessary to the MMIS in order to support the initiative. These individual requirements may be directly transferable to the future MMIS or may overlap to create completely new functional requirements in the future MMIS.

Enablement of this legislation moves the MMIS closer to the higher levels of the MITA Maturity model, as well as the initiative's original Concept of Operations. Some of the key initiatives of the ACA that directly impact the MMIS are:

- Modification to Enrollment and Eligibility

- Modifications to Program Integrity
- Modifications to Service and Payments
- Providing Enhanced Long-Term Care (LTC) Services
- National Correct Coding Initiative

Appendix E – RFP and Report Crosswalk

Table 20 – Crosswalk Between RFP and Report

RFP Requirement	Research and Recommendations Report Location	Notes
6.4.2.1 The Contractor shall review applicable federal and state regulations on information technology system architectures that relate to the MMIS and health technology, including OIT guidelines for the State's information technology systems, information technology architectures and data sharing.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems Appendix D – STATE AND FEDERAL INITIATIVES AND SYSTEMS - State-level and Colorado Office of Information Technology Guidelines	
6.4.2.2 The Contractor shall review applicable federal and state regulations on information technology system architectures that relate to the MMIS and health technology, including Federal regulations and guidance on health insurance exchange technology.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems Appendix D – STATE AND FEDERAL INITIATIVES AND SYSTEMS - Health Insurance Exchange and State Requirements	
6.4.2.3 The Contractor shall review applicable federal and state regulations on information technology system architectures that relate to the MMIS and health technology, including Federal regulations and guidance on electronic health records and health information exchange, and associated provider incentive payments related to meaningful use.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems Appendix D – STATE AND FEDERAL INITIATIVES AND SYSTEMS - Alignment of MMIS with Statewide Health Information Exchange	
6.4.2.4 The Contractor shall review applicable federal and state regulations on information technology system architectures that relate to the MMIS and health technology, including Federal regulations and guidance on the Department's ability to receive enhanced federal matching funds for the MMIS, eligibility determination systems, and other information technologies.	Appendix F – CMS ENHANCED FUNDING REQUIREMENTS	

RFP Requirement	Research and Recommendations Report Location	Notes
6.4.2.5 The Contractor shall review applicable federal and state regulations on information technology system architectures that relate to the MMIS and health technology, including Federal regulations and guidance on the National Correct Coding Initiative	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems Appendix D – STATE AND FEDERAL INITIATIVES AND SYSTEMS - Patient Protection and Affordable Care Act (P.L. 111-148)	
6.4.2.6 The Contractor shall review applicable federal and state regulations on information technology system architectures that relate to the MMIS and health technology, including Federal regulations and guidance related to provider enrollment in Medicaid.	Section 5 and Appendix D	
6.4.2.7 The Contractor shall review applicable federal and state regulations on information technology system architectures that relate to the MMIS and health technology, including Federal regulations and guidance related to the implementation of the Patient Protection and Affordable Care Act (P.L. 111-148).	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems Appendix D – STATE AND FEDERAL INITIATIVES AND SYSTEMS - Patient Protection and Affordable Care Act (P.L. 111-148)	
6.4.3.1 The Contractor shall review how the standalone systems and information technologies developed by the Department over time may be integrated into the MMIS to create efficiencies, including the SDAC data warehouse.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems APPENDIX C – MMIS INTERFACING SYSTEMS - SDAC Data Warehouse and Portal	
6.4.3.2 The Contractor shall review how the standalone systems and information technologies developed by the Department over time may be integrated into the MMIS to create efficiencies, including the SDAC Web Portal.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems APPENDIX C MMIS INTERFACING SYSTEMS - SDAC Data Warehouse and Portal	

RFP Requirement	Research and Recommendations Report Location	Notes
6.4.3.3 The Contractor shall review how the standalone systems and information technologies developed by the Department over time may be integrated into the MMIS to create efficiencies, including the Provider Web Portal.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems APPENDIX C – MMIS INTERFACING SYSTEMS - Provider Web Portal	
6.4.3.4 The Contractor shall review how the standalone systems and information technologies developed by the Department over time may be integrated into the MMIS to create efficiencies, including the Department's web portal used for the prior authorization of medical services.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems	
6.4.4.1 The Contractor shall review how the MMIS may integrate or interact with other health information technologies under development in the state, including the State's Health Insurance Exchange under development through a planning grant from the federal government.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems Appendix D – STATE AND FEDERAL INITIATIVES AND SYSTEMS – Health Insurance Exchange and State Requirements	
6.4.4.2 The Contractor shall review how the MMIS may integrate or interact with other health information technologies under development in the state, including the All-Payer Database under development by CIVHC.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems APPENDIX C – MMIS INTERFACING SYSTEMS – All-Payor Database	
6.4.4.3 The Contractor shall review how the MMIS may integrate or interact with other health information technologies under development in the state, including the Electronic Health Records and the health information exchange under development by CORHIO.	Appendix D – STATE AND FEDERAL INITIATIVES AND SYSTEMS - Alignment of MMIS with State Medicaid HIT Plan and Alignment of MMIS with Statewide Health Information Exchange	

RFP Requirement	Research and Recommendations Report Location	Notes
6.4.5.1 Collect and perform a summary analysis on all MMIS related procurements, regardless of in which state they occurred, over the past ten (10) years.	Appendix A – STATE RESEARCH RESULTS	The Department agreed to let Public Knowledge select states to research based on alignment with research approach
6.4.5.2 Collect and analyze the contracts resulting from the MMIS related procurements, over the past ten (10) years.	2 – RESEARCH AND ANALYSIS contains references and various analyses of contract research. Specifically, section 2.4 addresses procurement trends, but additional contract-related analysis is contained within Section 2.	The Department agreed to let Public Knowledge select states to research based on alignment with research approach
6.4.6.1 - 6.4.6.11 Perform a detailed analysis to determine the best approach to procurement, best practices in MMIS related procurements, obstacles faced, lessons learned and improvements and enhancements available for a MMIS. This detailed analysis shall focus on the MMIS related procurements for all of the following states: AK, CA, IA, MA, MT, NE, OR, NH, WA, ME, RI	2 – RESEARCH AND ANALYSIS contains best practices information in general. - Section 2.4.1 – Procurement Trends -Section 2.4.1.1 – Procurement Strategy Innovations - Section 2.4.2 – Procurement Lessons Learned & Obstacles specifically addresses lessons learned, obstacles faced, and best practices. - Section 2.5 – MMIS Enhancements for Input to Alternatives Analysis and Procurement specifically addresses MMIS improvements and enhancements. - Section 2.2.1 State Interviews outlines specific states included within the scope of our research	Public Knowledge was unable to make direct contact with all states required by RFP. See section 2.2.1 for a gap analysis.

6.4.7. To ensure the development of an MMIS re-procurement solicitation that meets state and federal policies and direction, the Contractor shall review the current MMIS and apply the MITA Roadmap to determine how the MMIS will need to change to meet the MITA standards. The Contractor shall determine specific MITA Roadmap elements that may be included in the MMIS Re-procurement. Contractor shall analyze the expected feasibility, practicability and estimated cost of these changes. Contractor shall also prioritize the critical functions of the MMIS identified in the MITA SS-A and MMIS Operational and System Documentation.	3 – MMIS MITA ROADMAP ELEMENTS	
6.5.1.1. Written analysis of the elements, contained in the MITA Roadmap applicable to the MMIS and critical function prioritization.	3.2 – Transition Goals Identified in the MITA Roadmap	
6.5.1.2. Current MMIS Use Cases.	6 – CURRENT MMIS USE CASES	
6.5.1.3. The Contractor's review of applicable federal and state regulations on information technology system architectures that relate to the MMIS and health technology.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems Appendix D – STATE AND FEDERAL INITIATIVES AND SYSTEMS	
6.5.1.4. The Contractor's review of how standalone systems and information technologies developed the Department may be integrated into the MMIS to create efficiencies.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems	
6.5.1.5. The Contractor's review of how the MMIS may integrate or interact with other health information technologies under development in the state.	4 – MMIS Alignment with Current and Planned Health Care Initiatives and Systems Appendix D – STATE AND FEDERAL INITIATIVES AND SYSTEMS	
6.5.1.6. The Contractor's review and analysis of other state's MMIS related procurement activities.	2.3 – State MMIS Environment 2.4 – MMIS Procurement Environment	

6.5.1.7. The current best practices in MMIS related procurements.	2 – RESEARCH AND ANALYSIS contains best practices information in general. -Section 2.4.1 – Procurement Trends -Section 2.4.1.1 – Procurement Strategy Innovations - Section 2.4.2 – Procurement Lessons Learned & Obstacles specifically addresses lessons learned, obstacles faced, and best practices.	
6.5.1.8. A determination of the most advantageous procurement methods and approaches.	1.6 – Preliminary Recommendations for MMIS Re-procurement 2.3.4 MMIS Implementation Timeframes	
6.5.1.9. A detailed description of the obstacles other states have faced in MMIS related procurements.	Section 2.4.2 – Procurement Lessons Learned & Obstacles specifically addresses obstacles faced by other states.	
6.5.1.10. A discussion of the approaches or methods that allow the Department to avoid or mitigate the effects of obstacles during its own MMIS procurement project.	5 – MMIS PROCUREMENT ALTERNATIVES ANALYSIS 2.3.4 MMIS Implementation Timeframes	
6.5.1.11. Recommendations on whether the Department should have the new MMIS Contractor transfer an existing, modern MMIS from another state to use for the Department, have the new MMIS contractor propose a custom MMIS for the Department or have the new MMIS Contractor take over the existing MMIS and upgrade it.	1.6 – Preliminary Recommendations for MMIS Re-procurement	

6.5.1.12. Recommendations of improvements or enhanced functionality, currently in use in or proposed by other states, that would increase efficiency, functionality or capability of the Department's MMIS.	Section 2.5 – MMIS Enhancements for Input to Alternatives Analysis and Procurement specifically addresses MMIS improvements and enhancements. 2.3.1 Identified Innovative Solutions 2.3.2 Vendor Alliances and Partnerships 2.4.1.1 – Procurement Strategy Innovations	
6.5.1.13. The specific practices, approaches, best practices, obstacles faced and estimated cost (according to the Contractor's research or best estimate) for improvements and enhancements that were incorporated into the MMIS of the similar states included in the detailed procurement analysis.	Section 2.4.2 – Procurement Lessons Learned & Obstacles specifically addresses obstacles faced by other states. 2.3.3 MMIS Planning and Implementation Costs	
6.5.1.14. The pros and cons of any method, improvement or approach proposed.	5 – MMIS PROCUREMENT ALTERNATIVES ANALYSIS	
6.5.1.15. Updated re-procurement timelines for each method, improvement or approach proposed.	2.3.4 MMIS Implementation Timeframes	
6.5.2. As part of its MMIS Procurement Analysis Report, the Contractor shall recommend a procurement approach, including systems and operational options for Department consideration. All proposed solicitations and procurement methods shall conform to Department, State of Colorado and federal procurement laws, rules, regulations, policies and procedures and maximize competition amongst the potential bidders.	1.6 – Preliminary Recommendations for MMIS Re-procurement	

Appendix F – CMS Enhanced Funding Requirements

CMS Enhanced Funding Requirements: Seven Standards and Conditions

CMS Enhanced Funding Requirements: Seven Standards and Conditions Version 1.0, Medicaid IT Supplement (MITS-11-01-v1.0); April 2011.

The purpose of this section is to provide more detail about the Seven Standards and Conditions and the kinds of information, activities and documentation the federal government will examine over the course of a systems development lifecycle to allow for initial and ongoing approval of enhanced funding. These dimensions of development and artifacts are essential to help states ensure they are making efficient investments and will ultimately improve the likelihood of successful system implementation and operation.

Under sections 1903(a)(3)(A)(i) and 1903(a)(3)(B) of the Social Security Act, the Centers for Medicare & Medicaid Services (CMS) has issued new standards and conditions that must be met by the states in order for Medicaid technology investments (including traditional claims processing systems, as well as eligibility systems) to be eligible for the enhanced match funding. These standards are built on the work CMS, states and private industry have done over the last six years under the Medicaid Information Technology Architecture (MITA) initiative. The intent of moving to this approach is to foster better collaboration with states, reduce unnecessary paperwork, and focus attention on the key elements of success for modern systems development and deployment.

The seven standards and conditions are:

- Modularity standard,
- MITA condition,
- Industry Standards condition,
- Leverage condition,
- Business Results condition,
- Reporting condition, and

- Interoperability condition.

CMS will continue to refine, update, and expand this guidance in the future, based on initial and continuing feedback from states, beneficiaries, providers, and industry; and with experience over time. The standards and conditions are outlined in detail in the following sections.

Modularity Standard

This condition requires the use of a modular, flexible approach to systems development, including the use of open interfaces and exposed application programming interfaces (API); the separation of business rules from core programming; and the availability of business rules in both human and machine-readable formats. The commitment to formal system development methodology and open, reusable system architecture is extremely important in order to ensure that states can more easily change and maintain systems, as well as integrate and interoperate with a clinical and administrative ecosystem designed to deliver person-centric services and benefits.

Modularity is breaking down systems requirements into component parts. Extremely complex systems can be developed as part of a service-oriented architecture (SOA). Modularity also helps address the challenges of customization. Baseline web services and capabilities can be developed for and used by anyone, with exceptions for specific business processes handled by a separate module that interoperates with the baseline modules. With modularity, changes can be made independently to the baseline capabilities without affecting how the extension works. By doing so, the design ensures that future iterations of software can be deployed without breaking custom functionality.

A critical element of compliance with this condition is providing CMS with an understanding of where services and code will be tightly coupled, and where the state will pursue a more aggressive decoupling strategy.

Use of Systems Development Lifecycle methodologies: States should use a system development lifecycle (SDLC) methodology for improved efficiency and quality of products and services. The system development lifecycle methodology should have distinct, well-defined phases for inception through close-out; include planning that describes schedules, target dates, and budgets; should exhibit controls over the life of the project via written

documentation, formal reviews, and signoff/acceptance by the system owner(s); and should have well-documented, repeatable processes with clear input and output criteria (e.g., artifacts). States should assess deliverables against CMS guidelines such as MITA and Medicaid and Exchange IT Guidance.

CMS is implementing a streamlined systems development life cycle process for Exchange Grants that accommodates CMS feedback and direction to the states. All grantees have received guidance on this process. CMS will also distribute information on their combined Exchange/Medicaid governance processes to states through a variety of different mechanisms, including informational bulletins and by posting materials on the CMS website. States will be required to participate in this process for eligibility and enrollment systems needed to implement expansions under the Affordable Care Act. States may refer to this SDLC process as a model they can employ internally for other Medicaid IT projects. Otherwise, the system development methodology framework selected by the state should suit the specific kinds of project, based on varying technical, organizational, project, and team factors. Some mature methodologies for consideration include the traditional "waterfall" model; Rapid Application Development (RAD); Spiral Approach; Unified Process or Rational Unified Process (RUP), which reinforces the usage of Unified Modeling Language (UML); and Agile Development.

The objective of any SDLC process is to provide structure and discipline, and states are to build secure IT solutions based on SOA principles. The application of and adherence to SOA principles should facilitate the delivery of a flexible, agile, and interoperable MMIS. States should employ an open, reusable system architecture that separates the presentation layer, business logic (e.g., service layer), and data layer for greater flexibility, security, performance, and quality of design, implementation, maintenance, and enhancement in the software life cycle. The system architecture should utilize a user interface (UI) framework that deploys presentation components to allow for communication with disparate populations using different media formats such as web, email, mobile, and short message service (e.g., text messaging).

Identification and description of open interfaces: States should emphasize the flexibility of open interfaces and exposed APIs as components for the service layer. States should identify all interfaces in their development plan and discuss how those interfaces will be

maintained. States must develop and maintain an exposed API to any data services hub available for the reporting of data, verifications, and exchange of data among states. Service interfaces should be documented in an Interface Control Document (ICD). This ICD, for which CMS can provide a template, should contain details of hardware, operating systems, software, memory, service packs, product keys, and versions.

Use of business rules engines: States should ensure the use of business rules engines to separate business rules from core programming, and should provide information about the change control process that will manage development and implementation of business rules. States should be able to accommodate changes to business rules both on a standard schedule and on an emergency basis.

States should identify and document the business rules engines used, the manner in which the business rules engine(s) is implemented in the state's architecture, the type of business rules engine (e.g., forward-chaining, backward-chaining, deterministic/domain specific, event processing, inference-based, etc.); the licensing and support model associated with the business rules engine(s); and the approximate number of rules the business rules engine(s) executes for a given business process.

Submission of business rules to a HHS-designated repository: States should be prepared to submit all their business rules in human-readable form to an HHS repository, which will be made available to other states and to the public. In their APD, states must specify when they expect to make those business rules available. CMS will provide additional detail and specifications about how to submit those rules. If the states want to protect distribution of any specific business rules (e.g., those that protect against fraud), states may specify their desire to protect those rules.

MITA Condition

This condition requires states to align to and advance increasingly in MITA maturity for business, architecture, and data. CMS expects the states to complete and continue to make measurable progress in implementing their MITA roadmaps. Already the MITA investments by federal, state, and private partners have allowed us to make important incremental improvements to share data and reuse business models, applications, and components. CMS

strives, however, to build on and accelerate the modernization of the Medicaid enterprise that has thus far been achieved.

MITA Self Assessments: MITA 3.0 is currently being developed by CMS, and will be finalized later this year. This next version of MITA will take into account the changes required by the Affordable Care Act and the availability of new technologies such as cloud computing and build out maturity levels 4 and 5. Once completed, CMS expects all states to update their self-assessments within 12 months. If a state has not yet completed a self-assessment, it may wait until version 3.0 is published (expected later this year).

MITA Roadmaps: States will provide a MITA Maturity Model Roadmap that addresses goals and objectives, as well as key activities and milestones, covering a 5-year outlook for their proposed MMIS solution, as part of the APD process. This document will be updated on an annual basis. States should demonstrate how they plan to improve in MITA maturity over the 5-year period and their anticipated timing for full MITA maturity. States should ensure that they have a sequencing plan that considers cost, benefit, schedule, and risk.

Concept of Operations (COO) and Business Process Models (BPM): States should develop a concept of operations and business work flows for the different business functions of the state to advance the alignment of the state's capability maturity with the MITA Maturity Model (MMM). These COO and business work flows should align to any provided by CMS in support of Medicaid and Exchange business operations and requirements. States should work to streamline and standardize these operational approaches and business work flows to minimize customization demands on technology solutions and optimize business outcomes. CMS will provide more direction in future guidance about the form and format for the COO and BPMs.

Industry Standards Condition

States must ensure alignment with, and incorporation of, industry standards: the Health Insurance Portability and Accountability Act of 1996 (HIPAA) security, privacy and transaction standards; accessibility standards established under section 508 of the Rehabilitation Act, or standards that provide greater accessibility for individuals with disabilities, and compliance with federal civil rights laws; standards adopted by the Secretary

under section 1104 of the Affordable Care Act; and standards and protocols adopted by the Secretary under section 1561 of the Affordable Care Act.

CMS must ensure that Medicaid infrastructure and information system investments are made with the assurance that timely and reliable adoption of industry standards and productive use of those standards are part of the investments. Industry standards promote reuse, data exchange, and reduction of administrative burden on patients, providers, and applicants.

Identification of industry standards: CMS will communicate applicable standards to states. Standards will be updated periodically to ensure conformance with changes in the industry. States will be required to update systems and practices to adhere to evolving industry standards in order to remain eligible for enhanced FFP funding.

The state must identify all industry standards relevant to the scope and purpose of their project and produce development and testing plans to ensure full compliance. States must also have risk and mitigation strategies in place to address potential failures to comply.

Incorporation of industry standards in requirements, development, and testing phases: States must implement practices and procedures for the system development phases such as requirements analysis, system testing, and user acceptance testing (UAT). States' plans must ensure that all systems comply fully and on-time with all industry standards adopted by the Secretary of HHS.

To comply with to the Rehabilitation Act's section 508(c) for accessibility of user interfaces for disabled persons, states must produce a Section 508 Product Assessment Package as part of their SDLC. The state should perform regularly scheduled (e.g., automatic) scans and manual testing for Section 508(c) compliance for all types of user interface screens (static, dynamic, Web, client-server, mobile, etc.) to meet the standards for full compliance. Software is available that assist with Section 508(c) compliance testing.

Leverage Condition

State solutions should promote sharing, leverage, and reuse of Medicaid technologies and systems within and among states. States can benefit substantially from the experience and investments of other states through the reuse of components and technologies already developed, consistent with a service-oriented architecture, from publicly available or

commercially sold components and products, and from the use of cloud technologies to share infrastructure and applications. CMS commits to work assertively with the states to identify promising state systems that can be leveraged and used by other states. Further, CMS would strongly encourage the states to move to regional or multi-state solutions when cost effective, and will seek to support and facilitate such solutions. In addition, CMS will expedite APD approvals for states that are participating in shared development activities with other states, and that are developing components and solutions expressly intended for successful reuse by other states.

CMS will also review carefully any proposed investments in sub-state systems when the federal government is asked to share in the costs of updating or maintaining multiple systems performing essentially the same functions within the same state.

Multi-state efforts: States should identify any components and solutions that are being developed with the participation of or contribution by other states.

Availability for reuse: States should identify any components and solutions that have high applicability for other reuse by other states, how other states will participate in advising and reviewing these artifacts, and the development and testing path for these solutions and components will promote reuse. As the capability becomes available, states should supply key artifacts to a common, national cloud-based repository accessible by all states and CMS. Further definition of these artifacts (SLDC deliverables, business requirements and process flows, and conceptual and logical data models) and how to provide them to the national repository will follow in subsequent guidance.

Identification of open source, cloud-based and commercial products: States should pursue a service-based and cloud-first strategy for system development. States will identify and discuss how they will identify, evaluate, and incorporate commercially or publicly available off-the-shelf or open source solutions, and discuss considerations and plans for cloud computing. States should identify any ground-up development activity within their development approaches and explain why this ground-up activity has been selected.

Customization: States will identify the degree and amount of customization needed for any transfer solutions, and how such customization will be minimized.

Transition and retirement plans: States should identify existing duplicative system services within the state and seek to eliminate duplicative system services if the work is cost effective such as lower total cost of ownership over the long term.

Business Results Condition

Systems should support accurate and timely processing of claims (including claims of eligibility), adjudications, and effective communications with providers, beneficiaries, and the public.

Ultimately, the test of an effective and efficient system is whether it supports and enables an effective and efficient business process, producing and communicating the intended operational results with a high degree of reliability and accuracy. It would be inappropriate to provide enhanced federal funding for systems that are unable to support desired business outcomes.

Degree of automation: The state should be highly automated in systematic processing of claims (including claims of eligibility) and steps to accept, process, and maintain all adjudicated claims/transactions.

Customer service: States should document how they will produce a 21st-century customer and partner experience for all individuals (applicants, beneficiaries, plans, and providers). This 21st-century customer experience should include the ability to submit and manage interactions with Medicaid through the web and to self-manage and monitor accounts and history electronically. It should also outline how customer preferences for communications by email, text, mobile devices, or phones will be accommodated. States should also commit to testing and evaluation plans to ensure providers, applicants, and others interacting with and using their systems will have the opportunity to provide feedback and assessment of accessibility, ease of use, and appropriateness of decisions.

Performance standards and testing: CMS intends to provide additional guidance concerning performance standards—both functional and non-functional, and with respect to service level agreements (SLA) and key performance indicators (KPI). We expect to consult with states and stakeholders as we develop and refine these measures and associated targets. As this list of measures will be focused on very core elements/indicators of success, states should also consider adding state-specific measures to this list.

For the implementation of IT system enhancements, states will execute tests against test cases intended to verify and validate the system's adherence to its functional and non-functional requirements.

For operational IT systems, states will periodically evaluate system performance against established SLAs. When SLAs are not met, states will create and execute a Plan of Action with Milestones (POAM). CMS reserves the right to inspect a state's performance assessment outcomes and POAMs. States will periodically evaluate operational business processes against established KPIs. When KPIs are not met, states will create and execute a POAM. CMS reserves the right to inspect a state's performance assessment outcomes and POAMs.

Reporting Condition

Solutions should produce transaction data, reports, and performance information that would contribute to program evaluation, continuous improvement in business operations, and transparency and accountability.

Systems should be able to produce and to expose electronically the accurate data that are necessary for oversight, administration, evaluation, integrity, and transparency. These reports should be automatically generated through open interfaces to designated federal repositories or data hubs, with appropriate audit trails. MITA 3.0 will provide additional detail about reporting requirements and needs that arise from the Affordable Care Act. Additional details about data definitions, specifications, timing, and routing of information will be supplied later this year.

Interoperability Condition

Systems must ensure seamless coordination and integration with the Exchange (whether run by the state or federal government), and allow interoperability with health information exchanges, public health agencies, human services programs, and community organizations providing outreach and enrollment assistance services.

CMS expects that a key outcome of the government's technology investments will be a much higher degree of interaction and interoperability in order to maximize value and minimize burden and costs on providers, beneficiaries, and other stakeholders. CMS is emphasizing in

this standard and condition an expectation that Medicaid agencies work in concert with Exchanges (whether state or federally administered) to share business services and technology investments in order to produce seamless and efficient customer experiences. Systems must also be built with the appropriate architecture and using standardized messaging and communication protocols in order to preserve the ability to efficiently, effectively, and appropriately exchange data with other participants in the health and human services enterprise.

As stated in MITA Framework 2.0, each state is "responsible for knowing and understanding its environment (data, applications and infrastructure) in order to map its data to information-sharing requirements." The data-sharing architecture also addresses the conceptual and logical mechanisms used for data sharing (i.e., data hubs, repositories, and registries). The data-sharing architecture will also address data semantics, data harmonization strategies, shared-data ownership, security and privacy implications of shared data, and the quality of shared data.

Interactions with the Exchange: States should ensure that open interfaces are established and maintained with any federal data services hub and that requests to the hub are prepared and available for submission immediately after successful completion of the application for eligibility. States must ensure and test communications between Exchange and Medicaid systems so that determinations and referrals can be effectively transmitted from the Exchange. States should describe how shared services will support both the Exchange and Medicaid.

Interactions with other entities: States should consult with and discuss how the proposed systems development path will support interoperability with health information exchanges, public health agencies, and human services programs to promote effective customer service and better clinical management and health services to beneficiaries. States should also consult with and discuss how eligibility systems will allow community service organizations to assist applicants seeking health care coverage to complete forms and to submit those forms electronically.

Appendix G – CMS Contract Status Report

Centers for Medicare & Medicaid Services

MMIS Fiscal Agent Contract Status Report

September 19, 2011

REGION/STATE	FISCAL AGENT	CONTRACT START	CONTRACT END	OPTION YEARS	CONTRACT END WITH OPTION YEARS	CMS REGIONAL OFFICE CONTACT (AND FOOTNOTE 5)	CONTACT PHONE NUMBER	RO CONTACT E-MAIL (ADDITIONAL FOOTNOTES)
REGION I: BOSTON						DAVID GUINEY	(617) 565-1298	david.guiney@cms.hhs.gov
CONNECTICUT	HP Enterprise Svcs	10/1/2005	10/01/2012	3	10/01/2015			
MAINE	State Operated							
	Molina Information Systems (DDI)	12/07/2007	02/28/2010					
	Molina Information Systems (MMIS)	03/01/2010	12/31/2014	3	12/31/2017			
	CNSI – (MMIS maintenance)	08/20/2001	09/30/2005*	2	09/30/2010	* Contract ext		* IAPD submitted late 09/2008
MASSACHUSETTS	State Operated			0				
	HP - DDI	05/25/2005	03/01/2011	4	06/01/2015			
NEW HAMPSHIRE	HP Enterprise Svcs	02/01/1993	05/31/2007 *			* 23-month contract ext		
RHODE ISLAND	HP Enterprise Svcs	07/1/2005	06/30/2009	2	06/30/2011			Update pending
VERMONT	HP Enterprise Svcs	01/01/2004	12/31/2008	3	12/31/2011			
REGION II: NEW YORK						FRED MILLER	(212) 616-2420	fred.miller@cms.hhs.gov
NEW JERSEY	Molina Information Systems	08/24/2000	08/23/2005	extensions plus 3 option years	12/21/2013			
NEW YORK	CSC	05/1/2000	06/30/2006	3	06/30/2009*	*3-yr extension to 06/30/2012		
REGION III: PHILADELPHIA						SALLY HEENEY	(215) 861-4273	Sarahann.heeney@cms.hhs.gov
D.C.	ACS	06/22/2007	09/22/2014					
DELAWARE	HP Enterprise Svcs	09/24/2000	06/30/2008	4	06/30/2012			
MARYLAND	State Operated							
PENNSYLVANIA	HP Enterprise Svcs	11/01/09	10/31/2015					
VIRGINIA	ACS	06/30/2010	06/30/2014					
WEST VIRGINIA	Molina Information Systems	04/01/2003	04/01/2014	2	04/01/2016			
REGION IV: ATLANTA						DAVID HINSON/ ENITAN ODUNEYE	(404) 562-7411/ (404) 562-7424	Lawrence.hinson@cms.hhs.gov; Enitan.oduneye@cms.hhs.gov
ALABAMA	HP Enterprise Svcs	09/30/2011	10/30/2018					
FLORIDA	HP Enterprise Svcs	07/01/2008	06/30/2013	5	06/30/2016			

GEORGIA	HP Enterprise Svcs	11/01/2010						Certification pending
	Thompson Reuters (DSS)	06/30/2011	07/01/2012					
KENTUCKY	HP (MMIS)	03/29/2005	12/29/2010	2	12/29/2012			
MISSISSIPPI	ACS	03/15/2001	12/31/2010 *	1.5				* RFP is on the street now
	HID (DSS)	05/01/2006	06/30/2012	1.5		HID – Health Information Design		
NORTH CAROLINA	HP (MMIS)	1/23/1989	12/31/2008 *	2x(6mo) = 1	12/31/2009	Ext to Complete Replacement Act		* CSC won the new contract –
	ACS (Pharmacy PA)	09/22/1998	12/31/2008	2x(6mo) = 1	12/31/2009	Ext to Complete Replacement Act		
	ACS (DSS)	09/22/1999	12/31/2008	2x(6mo) = 1	12/31/2009	Ext to Complete Replacement Act		
	ACS (SURS)	09/22/1999	12/31/2008	2x(6mo) = 1	12/31/2009			
SOUTH CAROLINA	CLEMSON UNIV (MMIS)	07/1/2005	06/30/2008	2	06/30/2010	Deemed		
	CLEMSON UNIV (MEDS)	07/01/2006	06/30/2008	3	06/30/2011	Deemed		
	Thomson/MED STAT (DSS)	07/20/2005	07/19/2006	4	07/19/2010			
	ACS (TPL)	07/01/2006	06/30/2011			Deemed		
TENNESSEE	HP Enterprises Svcs	10/1/1995	12/31/2008 *					* ACS has new contract
REGION V: CHICAGO						PAUL MICKLEY, DORIS ROSS, and JAMIE MILLER	(312) 353-9048/(303) 353-9843/(303) 469-6809	paul.mickley@cms.hhs.gov/doris.ross@cms.hhs.gov/jamie.miller@cms.hhs.gov
ILLINOIS	State Operated					Doris Ross	(312) 353-9843	
INDIANA	HP Enterprise Svcs	01/01/2008	12/31/2014			Paul Mickley		
MICHIGAN	State Operated					Paul Mickley		
MINNESOTA	State Operated					Paul Mickley		
OHIO	State Operated					Jamie Miller	(614) 469-6809	
WISCONSIN	HP Enterprise Svcs	11/10/2008	11/10/2013	5	11/10/2018	Paul Mickley		Option years exercised 1 year at a time
REGION VI: DALLAS						JEFF BRANCH/ TOBIAS GRIFFIN	(214) 767-6449 and (214) 767-4425	jeoffrey.branch@cms.gov/tobias.griffin@cms.hhs.gov
ARKANSAS	HP Enterprise Svcs	01/01/2005	6/30/2009	2	06/30/2011	RFP for new MMIS is out		
LOUISIANA	Molina Information Systems	01/01/2005	12/31/2009	5	12/31/2014			
NEW MEXICO	ACS	07/01/2005	12/31/2010	3	12/31/2013			
OKLAHOMA	HP Enterprise Svcs	01/01/2003	12/31/2007	2.5	06/30/2010			Extension to 12/31/2011
TEXAS	ACS	01/01/2004	08/31/2007	2	08/31/2009	Extension to 08/31/2013		
REGION VII KANSAS CITY						DAVID MEACHAM	(206) 615-2356	David.Meacham@cms.hhs.gov

IOWA	State operated with subcontractors	05/01/2010	06/30/2013	3	06/30/2016			
KANSAS	HP Enterprise Svcs	07/1/2002	06/30/2008	5	06/30/2013	Approved for up to 2 additional 1-yr extensions thru 06/30/2015 if exercised		
MISSOURI	Infocrossing	09/24/2007	06/30/2014	3	06/30/2017			
NEBRASKA	State Operated							
REGION VIII: DENVER						WILLIAM HOLMES	(303) 844-7478	william.holmes@cms.hhs.gov
COLORADO	ACS State Healthcare	07/01/2007	06/30/2010	5	06/30/2015	Option years exercised on each year		
MONTANA	ACS State Healthcare	09/01/2006	06/30/2011	3 and 3 mos	09/30/2014	Option years exercised on each year		
NORTH DAKOTA	State Operated							
	ACS (DDI)	06/23/2006				New Project Finish Date: Implementation delays		Implementation 06/20/12
SOUTH DAKOTA	State Operated							DDI Implementation delay – date TBD
	CNSI (DDI)	06/31/2008				Implementation in 07/2010		
UTAH	State Operated							
	ACS State Healthcare (MMIS)	11/01/2008	06/30/2013	3	06/30/2016	Option years exercised on each year		
WYOMING	Goold Health Systems (PBM/POS)	05/01/2009	06/30/2013	3	06/30/2016			
REGION IX: SAN FRANCISCO						JENNY CHEN (JC)	(415)744-3689	jenny.chen@cms.hhs.gov
ARIZONA	State Operated							
	HP - (DSS)	01/30/2005	01/30/2007	4	01/30/2011			
CALIFORNIA	ACS	05/01/2010	06/30/2015	5	06/30/2020			
	HP Enterprise Svcs	02/01/03	06/30/2007	3	06/30/2010*			*Ext of up to 1 yr (06/30/11) during ACS Takeover
	Bull Services - (DSS)	03/15/2007	03/31/2011	3	03/31/2014			
HAWAII	State Operated by AZ (Managed Care)	12/1/2000	Ongoing					
	State Operated by AZ (FFS)	11/1/2002	Ongoing					
	ACS (PBM and Other FFS FA Services)	01/01/2009	06/30/2010	2	06/30/2012			
NEVADA	FHSC	10/01/2003	10/30/2006	Two 3-year options	10/30/2012			

REGION X: SEATTLE						Mary B. Jones	(360) 486-0243	Mary.Jones2@cms.hhs.gov
ALASKA	ACS (ACS assumed the contract for operations on 01/01/09. System was formerly operated by FHSC)	07/01/1995	10/31/2011*			*CMS has extended the contract to 2011. CMS is waiting on APD update from the State to move implementation date.		Implementation (ACS) in October 2011
IDAHO	Molina Information Systems	06/01/2010	11/30/2014	3	11/30/2017			Implementation 06/21/2010
OREGON	HP Enterprise Svcs	12/1/2008	09/30/2012	3	9/30/2015			
WASHINGTON	CNSI	05/09/2010	07/31/2012			State in renegotiation of contract for operations thru 2020		Implementation 05/09/2010

State Summary

HP Enterprise Services –	18- CT, NH, RI, VT, DE, PA, AL, FL, KY, NC, IN, WI, AR, OK, KS, CA, ID, OR
Molina Information Systems LLC –	4 – ME, NJ, WV, LA
ACS –	12 - DC, VA, GA, MS, TN, NM, TX, CO, MT, WY, AK, WA
FHSC –	1 - NV
CNSI –	2 – ME, WA (MMIS Maintenance in Maine until 09/30/2010)
Clemson Univ.–	1 – SC
CSC	1 – NY, NC
Infocrossing	1 – MO
State Operated	15 - ME, MA, MD, IL, MI, MN, OH, IA, NE, ND, SD, UT, AZ, HI (by AZ)

Appendix H – Acronyms Table

Acronym	Definition
ACA	Affordable Care Act
ACC	Medicaid Accountable Care Collaborative
ADL	Activities of Daily Living
APCD	All Payor Claims Database
APD	Advanced Planning Document
ASO	Administrative Services Organization
BIDS	Colorado Bid Information and Distribution System
BIDS	Bid Information and Distribution System
BPM	Business Process Model
BUS	Benefits Utilization Services
BUS	Business Utilization System
CAPCD	Colorado All Payor Claims Database
CBMS	Colorado's Benefit Management System
CCD's	Continuity of Care Documents
CMAP Portal	Colorado Medical Assistance Program Web Portal
CMS	Federal Oversight Agency
COFRS	Colorado Financial Reporting System
COHBE	Colorado Health Benefits Exchange
COMMIT	Colorado Medicaid Management Innovation and Transformation Project
CORHIO	Colorado Regional Health Information Organization
COTS	Commercial Off The Shelf
DDI	Design, Development, Implementation
DSS	Decision Support System
DW	Data Warehouse
EOMB	Explanation of Medical Benefits
EPSDT	Early Periodic Screening, Diagnosis, and Treatment

FADS	Fraud and Abuse Detection System
FFP	Federal Financial Participation
FFS	Fee-For-Service
HCPF	Health Care Policy and Financing
HIE	Health Information Exchange
HIPAA	The Health Insurance Portability and Accountability Act
HIT	Health Information Technology
IADL	Instrumental Activities of Daily Living
LTC	Long-Term Care
MCO	Managed Care Organization
MECT	Medicaid Enterprise Certification Toolkit
MITA	Medicaid Information Technology Architecture
MMIS	Medicaid Management Information System
OIT	Office of Information Technology
OCR	Optical Character Recognition
PBM	Pharmacy Benefit Management
PDCS	Prescription Drug Claim System
PDL	Preferred Drug List
PHR	Personal Health Records
POAM	Plan of Action with Milestones
POS	Pharmacy Point-of-Sale
RFP	Request for Proposal
SDAC	Statewide Data Analytics Contractor
SDLC	System Development Life Cycle
SMHP	State Medicaid HIT Plan
SOA	Service Oriented Architecture
SOO	Statement Of Objectives
SS-A	State Self-Assessments
SS-O	Single Sign-on
TPL	Third Party Liability

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