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## Section 1: Introduction

CNSI is pleased to present this statement of work to implement the Community Health Automated Medicaid Processing System (CHAMPS) Operational Data Store (ODS) for the State of Michigan Department of Community Health (MDCH). CNSI proposes to complete the CHAMPS ODS Project under a fixed-cost agreement.

### 1.1 Regulatory and Business Drivers for Change

Currently, the State of Michigan has a robust solution that supports effective online processing with CHAMPS and historical and trend reporting from the Data Warehouse. While this has been and continues to be a successful solution, there have been recent challenges in creating and supporting operational reports using real-time data. The CHAMPS system priority is transaction processing, so ad-hoc reporting by users is limited to prevent degradation of system performance. The Data Warehouse, on the other hand, has the full capability for user ad-hoc reporting, but it does not have real-time data within the framework. The source data files are received and loaded on a weekly schedule. Therefore, there is a need to review options that will support ad-hoc reporting using near real-time data.

Having more current access to this data will address two different challenges for the State. The first is the integration of more historical and cross-functional analytic processes into the front-line processes, providing more timely and relevant data for its membership. The second is timely interactions and transactions into back-end analytics so that CHAMPS' operational strategy can be measured and fine-tuned at an ever increasing pace. In order to provide the real-time data that will address these challenges, CNSI will explore the incorporation of an ODS into its existing data management architecture.

#### 1.1.1 The Difference Between our ODS and Data Warehouse

By definition, a data warehouse contains data collected from various sources when the source systems are offline or not in peak-use. Therefore, the data is updated on a routine schedule (such as weekly). However, an ODS is online and updated frequently (such as hourly) and typically supports real-time reporting modules or applications. In most cases, the ODS is used for transactional data, especially when there are multiple data sources that must be brought together for real-time reporting purposes.

Most of the data used in current operations is housed in an ODS before it is transferred into a data warehouse for long-term storage, reporting, and archiving. To ensure accurate and reliable data in an ODS, and subsequently into a data warehouse, the data can be scrubbed, resolved for redundancy, and checked for compliance with the corresponding business rules. An ODS supports integrating disparate data from multiple sources so that business operations, analysis, and reporting can be carried out while business operations are occurring.

ODSs are normally designed for relatively simple queries on small amounts of data, such as finding the status of a group of members' claims, rather than complex queries on large amounts of data typical of a data warehouse. An ODS is similar to short-term memory in that it stores only very recent information. Comparatively, a data warehouse is comparable to long-term memory in that it stores relatively permanent information.

The CHAMPS ODS implementation for the State will focus on claims. Claims data from multiple sources will be updated several times per day into the ODS; however, the actual frequency of data loads will be defined during the course of the project. By having this data, users will have the ability to perform ad-hoc reporting using near real-time data. For example, claims data that resides in CHAMPS' Claims and Encounters subsystem, ClaimsSure, or eMIPP can be combined together to create reports, as needed. The ODS will be a separate database from the CHAMPS transactional database which will eliminate any performance impacts on CHAMPS processing and allow for fast processing of queries and reports. Extract, transform, and load (ETL) processes will be used to move the data frequently from the transactional database to the ODS.

## 1.2 CNSI Capabilities

CNSI's approach to enhance CHAMPS to support the CHAMPS ODS Project is based on its ongoing partnership with MDCH and the Department of Technology, Management & Budget (DTMB) and its extensive knowledge of CHAMPS design, implementation, and operation. As system developers and integrators, CNSI aligns its clients' business processes and information systems to provide access to the right information at the right time, enabling the achievement of their desired business results and creating enterprise value. CNSI will employ its extensive technological experience in the industry and incorporate its flexible tools and methodologies to deliver quality results on time and within budget. CNSI completes jobs for clients by delivering on commitments with speed and purpose in accordance with the client's specifications and expectations. CNSI is a recognized leader in championing creative ideas and thinking beyond normal parameters and is passionate about continuous innovation and process-improvement. CNSI works with the latest technologies and remains vendor- and technology-agnostic, providing clients with the right solutions at the best values.

CNSI will build upon its extensive knowledge gained from designing, developing, implementing, and operating CHAMPS for the State, as well as previous CHAMPS efforts, including the HIPAA 5010 compliance implementation, and the ongoing International Classification of Diseases, Tenth Edition (ICD-10), transition and remediation. In implementing the ODS and integrating it with CHAMPS, CNSI will continue to collaborate with the State's business and technical personnel and provide an experienced team of Medicaid subject matter experts (SMEs) who have the technical, business, and project management expertise to support this endeavor.

CNSI's experience working on prior Medicaid health information technology (IT) initiatives has led to incorporating the following factors in developing this statement of work:

- **CNSI's understanding of transactional system operations and data warehouse reporting**  
CNSI operates Medicaid systems and has developed data warehouses for multiple states, which provides CNSI with a thorough understanding of the challenges of real-time reporting from both of these solutions. CNSI will apply its understanding to design and develop an efficient and effective ODS to meet the State's real-time reporting requirements.
- **CNSI's capability to conduct complex analysis of Medicaid system requirements**  
CNSI's project teams have a wealth of experience with multiple Medicaid programs, which allows them to efficiently conduct the data-gathering and analysis activities for this initiative.

Architects and SMEs who have worked with CHAMPS for a variety of Medicaid health IT initiatives are among the team members involved in this effort.

- **CNSI's sensitivity to the State of Michigan's needs and constraints**

CNSI is uniquely qualified to remain sensitive to the State's needs and constraints in defining the project's approach. The team will employ an orderly, structured, professional approach that is sufficiently flexible to respond to changes in requirements that evolve from additional understanding. Overall, CNSI has practical "hands-on" experience of what does and does not work.

## 1.3 Proposed Project Organization

CNSI believes this statement of work represents the best possible combination of architecture, technology, support, and experience to complete this project. The proposed team members are each the best possible candidates of their respective disciplines. The underlying logic behind identifying each member of this group is that:

- They share the same philosophical approach for undertaking this project – **the customer comes first.**
- They understand the values that each member brings to successfully implementing the project.
- They are committed to understanding and incorporating the State's requirements.
- They understand the necessary advanced technologies, business needs, and operational issues.

CNSI's primary objective is the successful implementation and completion of the project. Its team is fully dedicated to the CHAMPS ODS Project and is confident in its ability to achieve that goal.

However, an effective project management plan cannot work with participation only by CNSI. As the customer, the State is the most important member of the project team. The customer must be actively engaged in the process at all levels. Implementation is only as good as the partnership established and maintained between all involved parties.

## Section 2: Project Management, Methodology, Tools, and Technical Approach

This section presents CNSI's project management and technical approaches, methodology, tools, and phased work plan for accomplishing all activities required for the CHAMPS ODS Project. This section describes the scope of activities to be addressed throughout the project, from the initiation phase to final implementation, as well as the techniques and methodologies CNSI's project team will use.

Each of the following subsections will contain a high-level description of the four-phase approach for this project. For each phase, the major activities and anticipated deliverables are presented, followed by a high-level description of the major milestones and approximate timelines.

### 2.1 Project Management Approach

The project's successful implementation relies on the framework and environment provided by project and quality management. Figure 1 shows CNSI's project and quality management framework and how the related activities interact with project tasks.

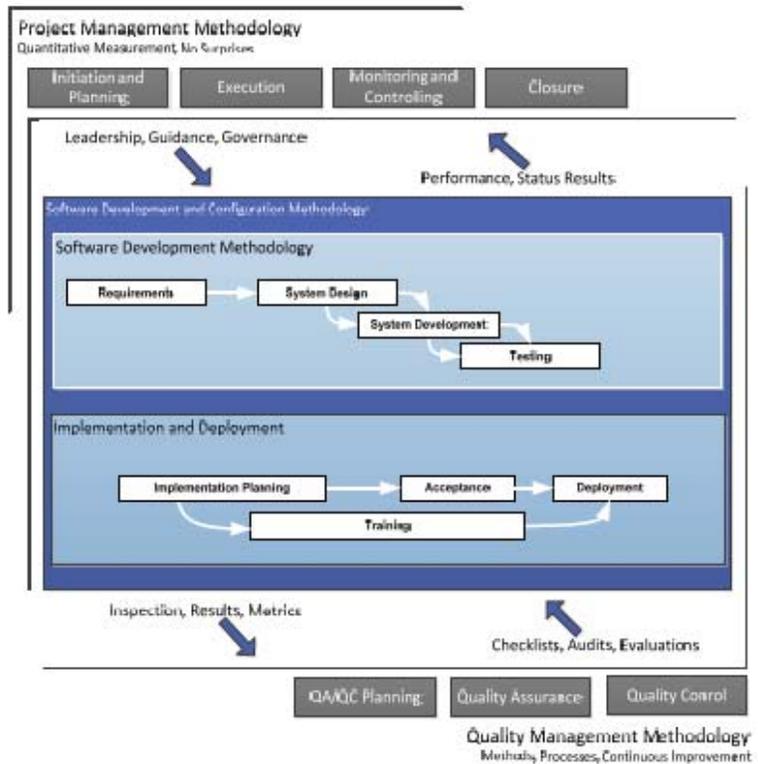


Figure 1. CNSI's Project Management and Quality Management Framework

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Although all projects are unique, they share common components and processes. The generally accepted process groups defined by the *Project Management Body of Knowledge (PMBOK)*, as incorporated into the CNSI project management process, are:

- **Initiating:** This process group defines the project objectives and grants authority to proceed. For CNSI, the initiating processes are largely incorporated into the proposal development process, during which required partners are identified.
- **Planning:** This process group refines the project objectives and scope and plans the tasks, activities, and steps necessary to meet the project's objectives. The planning processes start during proposal development and proceed following contract award while CNSI works with the customer to establish and baseline the project management plan. The project management plan is modified and updated as necessary over the course of the project. It is the culmination of the planning processes for scope definition and management, time (scheduling), staffing (human resources), communications, and risk management.
- **Executing:** This process group puts the project's plans into motion. This is where the bulk of the work for the project is performed.
- **Monitoring and Controlling:** This process group measures the performance of the project's executing activities and reports these performance results to project managers and stakeholders. Output is used to refine, improve, and/or change project management (including plans and schedules) as necessary to meet the project's objectives.
- **Closing:** This process group documents the formal acceptance and approval of the project's product and brings all aspects of the project to a close.

CNSI is confident it has the correct methodology and project framework in place to successfully implement the CHAMPS ODS Project. CNSI continually improves its project management processes using lessons learned from previous projects and through the proficiency and continuous education of its program and project managers, senior technical and engineering staff, and senior and corporate management. This ensures a number of advantages:

- The project management philosophy is firmly entrenched within the entire project team, including MDCH and CNSI.
- Project management is a core competency.
- The project staff is focused on successfully implementing the project.
- Project management, quality management, and cost management processes are fully integrated and their infrastructure is in place.
- Effective project status reporting is established throughout the project life cycle.
- Project and software development methodologies are well documented.
- Project information is communicated continuously to the right people at the right time.
- The project is continuously monitored against performance.
- Excellence in quality and delivery are built in.

- Deliverable review and approval processes are in place.

Through developing the project management plan, CNSI expects to collaborate with the MDCH project management team to further customize CNSI's project management system to successfully complete the project.

## 2.2 Project Methodology

CNSI's holistic approach for this project will use its proven methodology as the overarching framework and bring an experienced team of program managers, SMEs, technical experts (both inside and outside the company), and change management resources to support this effort.

The project methodology is a framework that facilitates the integration of CNSI's extensive system experience, which is rooted in application implementations, methodologies, and delivery tools. This framework allows CNSI to deliver services to its clients consistently across its footprint and gather continued enhancements for its supporting methodology, thereby providing continued value for its clients.

CNSI's methodology is an integrated methodology that combines its best delivery assets. The methodology:

- Provides a scalable, integrated collection of assets.
- Provides a consistent level of detail and presentation.
- Supports tailoring to scale, which provides a unique, but consistent cost-effective delivery approach.

CNSI's methodology approach consists of the following:

- The **Manage** work approach provides a single, consistent approach to managing CNSI's engagements. Within the Manage Approach is the Quality Management activity, which verifies that deliverables and processes meet requirements. The Quality Management activity also supports continuous process improvement, as well as the methodology.
- The **Life Cycle** work approach addresses unique expertise while providing overall integration across the full implementation life cycle.

CNSI's methodology has the flexibility to be adapted to meet MDCH's unique requirements while confirming that its experienced staff members follow established practices.

While no two engagements are the same, MDCH expects CNSI to deliver in a consistent, systematic approach. The proposed project methodology incorporates CNSI's staff's delivery experience into a single, integrated approach. It provides the structure for integrating CNSI's capabilities while allowing individual project teams the flexibility to use client-mandated tools. The right assembly of technologies, techniques, and deliverable processes requires the specific experience and expertise found in CNSI's staff.

Investing time to create an effective plan with clear objectives is integral to effective project execution. CNSI's methodology provides a structured approach to the planning process. While this may appear to require more initial effort than desired, experience has shown that following these processes reduces the likelihood of planning mistakes and results in lower risk and a more cost-effective, rapid delivery.

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CNSI’s methodology incorporates a consistent approach for identifying, tracking, and measuring the value derived from ongoing projects. CNSI’s experience developing and delivering various client projects is incorporated into the project strategy and planning activities.

In undertaking this project, CNSI will employ its iVision360 system development life cycle (SDLC) methodology tailored for the CHAMPS ODS Project:

- **User is at the Center:** CNSI’s primary motivation in developing iVision360 is to put the user at the center of the project life cycle. Successful projects have high interaction with end users and place the user at the center of the project. Every phase and activity of iVision360 focuses on interaction and collaboration with the user community. CNSI does this by implementing agile techniques and building working software in an iterative fashion with user validation at periodic intervals.
- **Common Goals:** Users actively participate in configuration sessions with an integrated team of developers, analysts, and testers. This method avoids the pitfalls of waterfall methods. iVision360 provides the team with a sense of purpose, a goal, and the drive to accomplish the end objective: software that meets the requirements.
- **Early and Often Testing:** iVision360 provides an opportunity to test early and often so formal system test phases and subsequent test phases are more likely to meet schedule expectations with a lower error-discovery rate.

By introducing the baseline management features of waterfall, CNSI minimizes the risk of scope creep that is sometimes associated with iterative methods. Moreover, implementing and integrating with project management processes will provide integrated change, issue, and risk management. Table 1 describes the key benefits of each of the industry-standard methodologies that are blended into iVision360.

**Table 1. SDLC Methodology Comparison**

Methodology	Key Benefits Blended into iVision360
<b>Waterfall</b>	Baseline approval of requirements Structured documents and customer approvals Formalized testing
<b>Iterative/Agile</b>	Frequent customer interaction Decomposing work into small meaningful features that are presented in working software Frequent course corrections Sense of real progress Early and frequent testing
<b>Extreme Programming</b>	Teams formed between developing organization and customer Sense of common vision and goal

iVision360 has been adapted for the purposes of this project. The customized version is presented in *Section 2.5.1 iVision360 Iterative Design, Testing, and Documentation Approach*.

## 2.3 Project Management Tools

Tools, when properly applied within the methodology framework, will reduce the time to complete a project by providing predefined processes, templates, documents, and training materials. More importantly, use of the appropriate tools will help reduce risk and increase efficiency.

CNSI will continue to use the tools already proven effective during the previous undertakings to reduce the time to complete the project and mitigate risk. Table 2 lists the tools CNSI will utilize for the project.

Table 2. CNSI Project Tools

Tool	Purpose
ReqTrace®	CNSI's requirements database used during design and test phases
Microsoft Visio	Develop use case diagrams, technical architecture diagrams, and support process flows
Microsoft Office	Develop project deliverables as well as presentations and spreadsheet artifacts needed to support deliverables
As-One	Repository for deliverables, presentations, and artifacts

Microsoft Visio and Microsoft Office are industry-standard tools. The following subsections provide additional information about ReqTrace and As-One.

### 2.3.1 ReqTrace

CNSI will use its ReqTrace web application for requirements analysis and validation.

During project initiation and requirements planning, ReqTrace will be loaded with the functional, technical, and support requirements. ReqTrace is CNSI's requirements management tool of choice being used in Medicaid management information system (MMIS) projects. ReqTrace provides the ability to trace requirements to use cases, related test cases, and results. The application can store requirements-related attributes, including revisions, notes, and comments.

CNSI began using ReqTrace during the implementation of CHAMPS. The requirements validation processes used on the project, as well as the use of ReqTrace, resulted in the requirements validation phase being completed ahead of schedule.

### 2.3.2 As-One

Believing that continuous collaboration and information-sharing are key factors to successful project execution, CNSI will use As-One, its web-based enterprise program management solution. Figure 2 illustrates how As-One is designed to support team collaboration, knowledge management, and process improvement. As-One will provide a convenient repository for all program data and will give MDCH oversight personnel direct visibility into project performance.

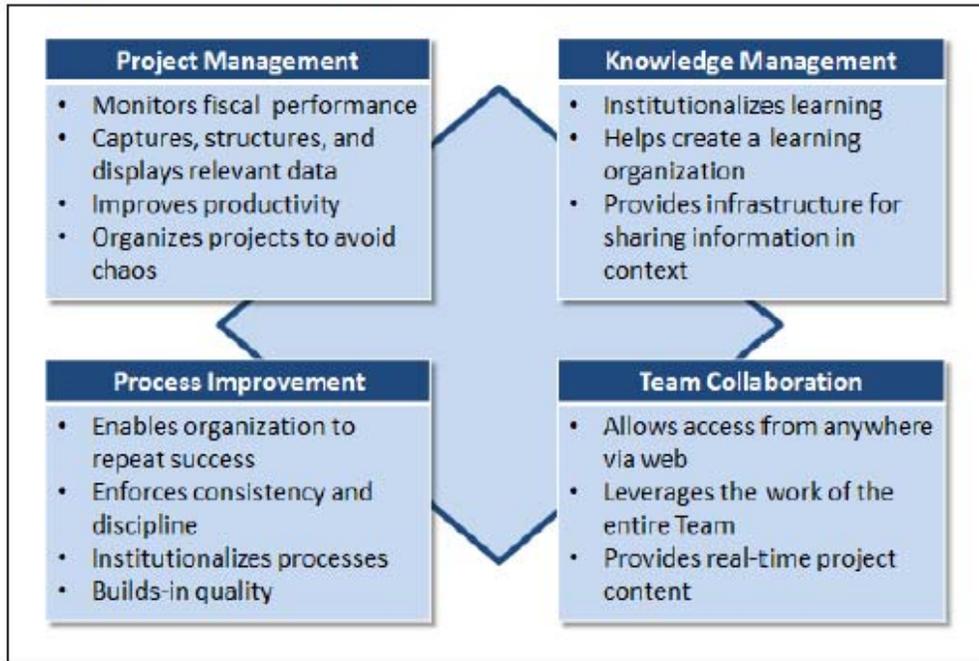


Figure 2. As-One Collaboration and Improvement

As-One is an “out-of-the-box” solution that supports CNSI’s program management philosophy: experienced people, managed processes, and enabling technology.

As-One will allow CNSI users to share real-time data specific to the user’s authority and association and is accessed via a standard web browser. CNSI’s previous and ongoing projects with MDCH and DTMB use As-One. Training will be provided for team members new to the program.

## 2.4 Solution

This section will review at a high level the technical and functional overviews of the CHAMPS ODS Project. Full business and technical requirements will be elicited and documented as a part of the first phase of the project.

### 2.4.1 Technical Overview

Through the CHAMPS ODS Project, CNSI will determine what an appropriate ODS solution would consist of. This decision-making process would require MDCH business analysts and the data management teams to assess business processes that must be executed to complete transactions or operational reporting requests. The initial focus will be on claim-related functions. These assessments are truly effective when utilizing an approach that includes business process management (BPM).

An ODS is generally defined as a set of logically related data structures within a database. The data within an ODS is integrated, volatile, and at a non-historical, granular level designed to address a set of operational functions for a specific business purpose. The ODS must also be based on the organization's enterprise standards for data management. On the initial candidate set of business functions (claims), the focus will be on data dependencies with close attention to any issues or pain points where inefficiencies and ineffectiveness are highlighted.

The capabilities of timely and functional data (refer to *Section 1.1 Regulatory and Business Drivers for Change*) will be delivered through CHAMPS and consistent with current frameworks.

### 2.4.2 Functionality

At a high level, CHAMPS will be modified to provide the following capabilities to MDCH.

#### Subject-Oriented

The ODS will contain specific data that is unique to a set of required business functions. As a result, the data will represent specific subject areas.

#### Integrated

Data in the ODS will be sourced from various MDCH applications. The source data will be taken through a set of ETL operations that includes cleansing and transformative processes. These processes will be based on rules that have been created through business requirements for data quality and standardization.

#### Current (Non-Historical)

The data in the ODS will have near-date (timing to be determined during the project) and the current status of the data will be provided from the sourcing applications.

## Detail

ODS data will be primarily used to support MDCH operational business functions. This means there will be a specific level of granularity based on business requirements that dictate the level of detail ODS data will have.

## 2.5 Technical and Phased Approach Work Plan

CNSI has created an initial work plan and timeline for the CHAMPS ODS Project. This work plan describes the expected activities for the proposed phases and major activities. The CHAMPS ODS is expected to be tested and released in multiple production releases. The overall timeline is presented in Figure 3 below. A detailed description of the major activities within each phase is presented in *Section 2.5.2 Phased Approach Work Plan*.

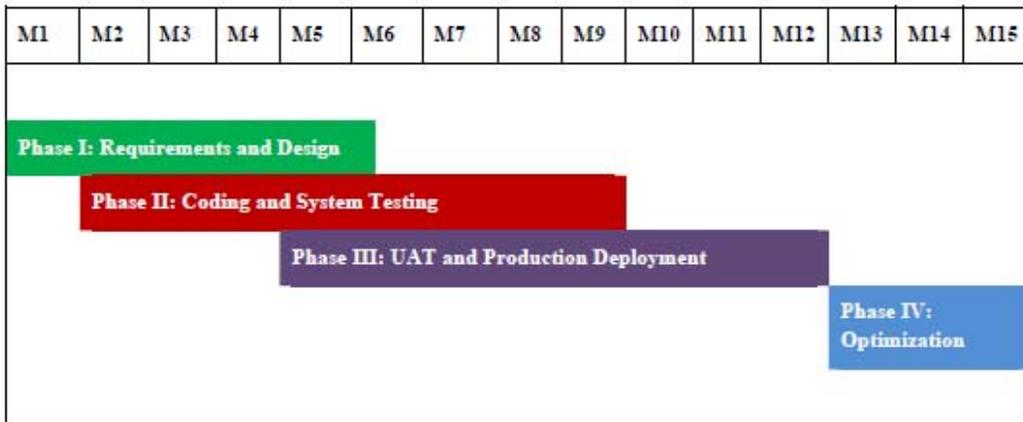


Figure 3. Initial Project Work Plan

CNSI structured this work plan to address the overall relationships of the phases and activities required to complete the project. It effectively uses the professional resources required to accomplish these phases and produce high-quality products in a cost-conscious manner.

The following subsections further describe how CNSI intends to accomplish the goals of the work plan by employing its iVision360 methodology in the proposed approach for the CHAMPS ODS Project.

### 2.5.1 iVision360 Iterative Design, Testing, and Documentation Approach

In this section, CNSI provides an outline of its iVision360 SDLC. The SDLC is a full-featured methodology that includes standard design and development processes. CNSI's SDLC processes have been adapted to address the specific needs of the project. This project will be divided into four phases.

CNSI will engage in iterative requirements analysis and design with the State at the beginning of each release. The State will be able to review requirements analysis and design documents as soon as a logical set of iterations are completed. CNSI expects initial State signoff upon acceptance of the iteration's

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document scope. This will help reduce the time required for document review and approval. The documents reviewed at any time will have a smaller scope to help the State perform a thorough review. At the end of all iterations for a release, an overall document will be produced for a final delivery and acceptance to State.

The iterative/agile development and testing portion of the iVision360 methodology is visible in each release of design and coding. During this phase, technical design specifications for impacted functions and user stories are constructed in parallel by developers and the SMEs. As the impacted function's design is completed, the team lead will plan the related development iterations.

Developers will build internal design documentation prior to, and during, the iterations. The beginning of each iteration is reserved for startup activities, including finalizing the internal design documentation. The developer meets with the data modeling team on Day 1 of an iteration to conduct a walkthrough of any required data model changes. The data modeling team makes the required changes to the database schema and approves the physical model for coding. Developers also develop iteration test cases (for the tasks that may not be tested with automatic internal iteration test code), which are required to test each story completely.

Coding begins when the internal design and pre-coding work is completed for the iteration. The developer will write internal iteration test scripts in parallel to actual working code and update screens and other system functions to fit the physical mode. The developer will execute the iteration test scripts as they complete sections of code. The codes will be built and tested incrementally. The developer will coordinate daily stand-up meetings and communicate any development issues.

This development approach ensures developers do not work in silos. It also avoids the traditional approach of throwing design documentation "over the fence" to developers to begin coding, only to discover later that major rework is required halfway through the development process.

Developers eventually test the code against internal auto-unit-code and manual internal iteration test scripts. As they reach the end of the iteration, they will run the code against functional scripts developed by the test team. Discrepancies are identified and corrected, and the developer retests to ensure all discrepancies are corrected and closed before the iteration ends. The developer will conduct a peer review of the impacted function's code on the last day of the iteration and then update the code based on the review. When developer iteration testing and software code reviews are successfully completed for the iteration, the code will be promoted to the integration test stream. The code will be released to the test team for system testing when coding and developer iteration testing is completed for all of an impacted functions user stories.

During initial development iterations, the test team will develop system test cases based on requirements specification. During system testing, the test team will execute system test cases to validate system results against requirements.

CNSI plans to engage the test and development teams early on to build the regression test suite for critical functions. This will help to speed up testing and improve overall quality of implementation. During system testing, if required, regression tests will be performed on impacted functions based on changes to a previously tested baseline. The intent of regression testing is to demonstrate that the CHAMPS system continues to meet all approved requirements after changes have been introduced to a previously tested baseline.

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As soon as system testing is completed for an activity, CNSI will deliver the code to the user-acceptance test (UAT) environment. CNSI plans to engage the State as early as possible and well before the beginning of the planned UAT phase. This will ensure enough time is allowed for thorough UAT and reduce the risk of schedule slippage for UAT completion.

Figure 4 presents a graphical overview of the processes that are part of the iVision360 methodology.

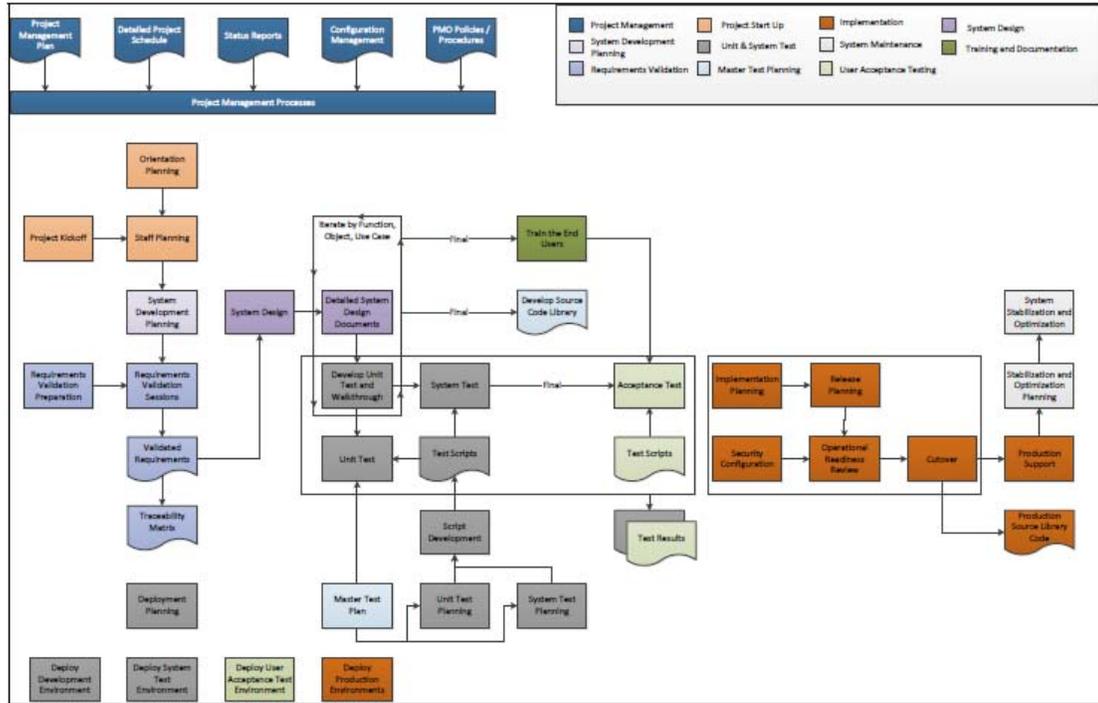


Figure 4. iVision360 Process Diagram

## 2.5.2 Phased Approach Work Plan

CNSI proposes an over-lapping, four-phased approach to the implementation and rollout of the CHAMPS ODS Project. The four phases will be overlapped in order to accelerate the completion and approval of tasks. The four phases are as follows:

- Phase I: Requirements Validation and Design
- Phase II: Coding and System Testing
- Phase III: UAT and Production Deployment
- Phase IV: Stabilization and Optimization

Figure 5 provides a high-level overview of the project phases with major activities and anticipated deliverables:

Phase I Requirements Validation and Design	Phase II Coding and System Testing	Phase III UAT Testing and Production Deployment	Phase IV Stabilization and Optimization
<p><b>Major Activities:</b></p> <ul style="list-style-type: none"> <li>Project Initiation and Kickoff</li> <li>Project Planning</li> <li>Requirements CAD Sessions</li> <li>Design CAD Sessions</li> <li>Hardware Planning and Acquisition</li> </ul> <p><b>Estimated Duration:</b> 2 Months</p>	<p><b>Major Activities:</b></p> <ul style="list-style-type: none"> <li>Test Planning (Unit System UAT &amp; E2E)</li> <li>Software Development</li> <li>Unit and System Testing</li> </ul> <p><b>Estimated Duration:</b> 5 Months</p>	<p><b>Major Activities:</b></p> <ul style="list-style-type: none"> <li>User Acceptance Testing</li> <li>Business-to-Business Testing with Trading Partners</li> </ul> <p><b>Estimated Duration:</b> 4 Months</p>	<p><b>Major Activities:</b></p> <ul style="list-style-type: none"> <li>Post Deployment Verification</li> <li>Post Deployment Monitoring</li> <li>Issue Resolution</li> <li>Performance Analysis</li> <li>Performance Tuning</li> </ul> <p><b>Estimated Duration:</b> 3 Months</p>
<p><b>Phase Deliverables:</b></p> <ul style="list-style-type: none"> <li>Project Work Plan</li> <li>Requirements Specification Document</li> <li>As-Built DSD</li> <li>Hardware Purchase Orders</li> <li>Requirements Traceability Matrix</li> </ul>	<p><b>Phase Deliverables:</b></p> <ul style="list-style-type: none"> <li>System Test Results Report</li> <li>Deploy Hardware/Software</li> </ul>	<p><b>Phase Deliverables:</b></p> <ul style="list-style-type: none"> <li>UAT Test Results Report</li> <li>Code Deployment to Production</li> </ul>	

Figure 5. High-Level Project Phases and Activities

With every project, there are critical milestones to be met and work products and deliverables that must be developed and produced in order to provide the inputs necessary to perform the next phase. Table 3 elaborates on the key high-level milestones of the proposed implementation plan, along with the expected deliverables.

In Table 3, we summarize the high-level activities to be completed as a part of this engagement. In this table, we also provide the deliverable to be produced in each phase of the effort. **Formal deliverables** are shown in **bold text**.

Table 3. High-Level Activities by Phase

Key Activity	Description	Phase
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Key Activity	Description	Phase
<b>Project Initiation and Kickoff</b>	Establish the project team structure, key stakeholders, and operating guidelines for team activity throughout the course of the project.	Phase I
<b>Project Planning</b>	Establish project plans and schedules.	Phase I
<b>Requirements CAD Sessions</b>	Conduct CAD sessions to validate the ODS requirements and requirements across all subsystems.	Phase I
<b>Design CAD Sessions</b>	Conduct CAD sessions to document detailed ODS design and system design changes for all affected subsystems.	Phase I
<b>Hardware Planning</b>	Identify the hardware and software required to support the ODS database.	Phase I
<b>Phase I Deliverables</b> <b>Project Work Plan (Schedule)</b> <b>Requirements Specification Document</b> <b>Requirements Traceability Matrix</b> <b>As-Built DSDD</b>		
<b>Development</b>	Hardware/Software changes required to support the detailed functional design including: <ul style="list-style-type: none"> <li>• Interfaces</li> <li>• Functionality (driven by use cases)</li> <li>• Data Models</li> <li>• Reports</li> <li>• Database</li> </ul>	Phase II
<b>Test Planning</b>	Produce detailed test plans and schedules for each phase of testing: unit, system, and UAT.	Phase II
<b>Unit/System Testing</b>	Internal CNSI testing of developed functionality at the component, subsystem, and system level, including end-to-end (E2E) regression testing.	Phase II

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Key Activity	Description	Phase
<b>Phase II Deliverables</b>		
<b>System Test Results</b>		
<b>Implementation Planning</b>	Coordinate with the operations team to align the production installation of the system changes with the scheduled operational releases.	Phase III
<b>User Acceptance Testing</b>	MDCH testing of all system changes using formal UAT test scripts.	Phase III
<b>Phase III Deliverables</b>		
<b>UAT Test Results (State)</b>		
<b>Code Deployment to Production</b>		
<b>Post-Deployment Verification</b>	Perform a sanity check of all system functions after code deployment to ensure all features function as designed.	Phase IV
<b>Post-Deployment Monitoring</b>	Overall monitoring of CHAMPS system health and performance after code deployment.	Phase IV
<b>Issue Resolution</b>	Identification and plan-of-action to resolve issues should they arise after code deployment.	Phase IV
<b>Performance Analysis</b>	Measure and analyze post-deployment performance of the CHAMPS and ODS systems in comparison to pre-deployment system performance and estimates.	Phase IV
<b>Performance Tuning</b>	Adjust system queries, database tables and interfaces as needed to improve system processing and throughput.	Phase IV

### 2.4.2.1 Phase I – Requirements Validation and Design

#### Activity 1 - Project Initiation

During this activity, CNSI will conduct the formal project kickoff and deliver team training and orientation. The major milestone associated with this activity is the project kickoff meeting.

#### Activity 2 - Project Planning

During this activity, CNSI will develop the project schedule to track and monitor the progress of the Member Portal project. The project schedule outlines the list of all the activities that are needed by CNSI to fulfill the needs of the Member Portal project. CNSI will also take the responsibility of integrating DCH and DTMB tasks in the project schedule to make sure all the dependencies are identified and tracked accordingly. Once the integrated schedule is reviewed and approved by all the relevant stakeholders, it is baselined.

The milestone associated with this activity includes:

- Integrated Project Schedule

#### Activity 3 – Requirements CAD Sessions

During this activity, CNSI will host CAD sessions to validate functional requirements. Sessions will be organized and scheduled per CHAMPS subsystem and/or MITA business area. The CAD sessions will include MDCH and CNSI functional and technical SMEs. Using the *MDCH ODS High-Level Business Requirements Document* and the assumptions defined in this statement of work as a starting point, session participants will confirm the meaning of each functional requirement.

CNSI will compare the finalized requirements with current CHAMPS functionality to determine the impact of the new requirements across all CHAMPS subsystems, including system aspects such as:

- Databases
- Interfaces
- Functionality (use cases)
- Data Models
- Reports

CNSI will use the results of the impact assessment to plan and conduct design activities.

This will result in a final requirements specification document, which provides a clear, concise, and final definition of each functional requirement.

The major milestone associated with this activity is the delivery of the functional requirements specification document.

#### **Activity 4 – Hardware Planning**

During this activity, CNSI will collaborate with the State to identify the required hardware and software for the ODS. Once the requirements are finalized, an evaluation will be completed to identify the existing hardware and software to determine that meets the ODS requirements.

The milestone associated with this activity is identification of the hardware and software meeting the ODS requirements.

#### **Activity 5 – Design CAD Sessions**

During this activity, CNSI will host CAD sessions to produce detailed functional design artifacts. Sessions will be organized and scheduled per CHAMPS subsystem and/or MITA business area. The CAD sessions will include MDCH and CNSI functional and technical SMEs. Using the existing CHAMPS design and the requirements specification document as a starting point, session participants will identify and document the ODS and required design changes across all CHAMPS subsystems, including system aspects such as:

- Databases
- Interfaces
- Functionality (use cases)
- Data Models
- Reports

This will result in final revised design artifacts, such as use cases and data models, which will be the basis for the development of changes to system functions. CNSI will submit the completed design artifacts to the appropriate MDCH functional team lead shortly after the completion of a CAD session. The MDCH team lead will provide formal approval of the design artifacts via signature on an approval form, similar to the existing CHAMPS enhancement approval process. This approval indicates that design is final and development can begin. CNSI will submit a final DSDD for MDCH approval upon completion of all Phase I design sessions.

The major milestone associated with this activity is the delivery of the as-built DSDD.

### **2.4.2.2 Phase II – Coding and System Testing**

#### **Activity 1 - Development**

During this activity, CNSI codes the software changes required to support the updated detailed functional design. Development includes the coding changes as defined in the DSDD for all CHAMPS subsystems, including system aspects such as:

- Database
- Interfaces
- Functionality (use cases)
- Data Models

- Reports

Development is performed in bi-weekly iterations. The major milestones associated with this activity include the completion of all development iterations.

### **Activity 2 – Test Planning**

During this activity, CNSI collaborates with MDCH to produce detailed test plans and schedules for each phase of testing, including system testing and UAT.

Milestones associated with this activity include:

- System Test Plan is delivered
- UAT Test Plan is delivered

### **Activity 3 – Implementation Planning**

During this activity, CNSI collaborates with MDCH to coordinate implementation planning with the operational releases. It is expected that the implementation will align with multiple scheduled operational releases.

The major milestone associated with this activity is the delivery of the alignment of implementation with the operational release schedule.

### **Activity 4 – Unit/System Testing**

During this activity, CNSI tests the developed functionality at the component, subsystem, and system levels, including E2E regression testing. In addition, the ODS team will coordinate system testing over multiple releases as part of the operational release process.

Milestones associated with this activity include:

- System Test Results Report is delivered
- Code is deployed to UAT environment
- UAT begins

## **2.4.2.3 Phase III – UAT, Testing and Production Deployment**

### **Activity 1 – UAT**

During this activity, CNSI deploys the final code to the UAT environment and provides support to MDCH staff who conducts UAT using formal test scripts. UAT will be coordinated with the testing for multiple operational releases.

The major milestone associated with this activity is that the UAT test results report is published by the State.

#### 2.4.2.4 Phase IV – Stabilization and Optimization

##### Activity 1 – Post-Deployment Verification

This activity involves verifying the correct installation and operation for all system components. During this activity, CNSI performs a sanity check of all system functions after code deployment to ensure all features function as designed.

Purpose:

- Verify Queues Operation
- Verify Interfaces Operation
- Verify Data Warehouse Extract Operation
- Verify ODS Extract Operation
- Verify all Production Job Schedules:
  - Interface Schedules
  - Data Warehouse Extract Schedules
  - ODS Extract Schedules
  - Queue Schedules

##### Activity 2 – Post-Deployment Monitoring

This activity involves monitoring the system in the months after the application upgrade has gone live.

Purpose:

- Monitor Key Operational Metrics:
  - Claims Payment Rates
  - Encounter Acceptance Rates
  - Prompt Pay Rates
  - Claims Payment Amounts
  - Pay Cycle Statistics
- Monitor Program Specific Metrics for programs impacted by the ODS requirements
- Monitor System Performance Metrics:
  - Database Performance
  - Application Queues Performance
  - Interface Performance
  - Reports Performance

### Activity 3 – Issue Resolution

This activity involves evaluating issues reported in the 90-day period. Issues will be logged and processed according to the CHAMPS Operations Incident Management, Application Support, Change Management, and Release Management processes. Issues that require system changes will be planned for software releases based on priority and will be assigned to CHAMPS Operations releases in accordance with the approved schedule.

Purpose:

- Incident Management:
  - OTRS(Open-source Ticket request System) Ticket Entry
  - OTRS Ticket Triage
  - OTRS Ticket Analysis
  - OTRS Ticket Disposition Determination (Defect, Enhancement, RFC(Request For Change), or Closure)
- Application Support:
  - Iterative Development
  - System Testing
  - RFC Creation and Testing
- Change Management:
  - CQ(Clear Quest) Entry
  - CQ Analysis
  - CQ Planning
    - Change Log Estimation and Approval
    - Code Promotion
    - RFC Deployment
- Release Management:
  - Release Planning
  - Release Assignment
  - Release Deployment

### Activity 4 – Performance Analysis

This activity is the process for analyzing the performance of CHAMPS after the ODS processing changes have gone live. Various operational reports and monitoring tools will be used to assess the performance of the system and identify opportunities for improvement.

Purpose:

- Operational Reports:
  - Identify any processes performing below benchmarks.
- Monitoring Tools:
  - Identify any servers with metrics outside normal operating ranges.
  - Identify any slow running queries.
  - Identify heavily used web pages.
  - Identify heavily used transactions.

### Activity 5 – Performance Tuning

After all processes, servers, and queries where performance issues are identified, the application support and infrastructure teams will construct a remediation plan. The remediation plan will identify the changes to be made, the timeline for the changes, and the deployment plan either through software release, RFC, or maintenance outage in the case of server changes.

Purpose:

- Application Support:
  - Perform process tuning in development environment.
  - Plan software changes for software releases per the CHAMPS operations release schedule.
  - Tuning changes are released and deployed according to the CHAMPS operations change management and release management processes.
  - If the application support teams require infrastructure changes, they will request the changes through the CHAMPS operations RFC process.
- Infrastructure Support:
  - Perform server tuning in lower environments.

Deploy configuration changes to Production during monthly planned maintenance outages. Emergency maintenance outages may be requested if performance issues are severe and business impact is high. In that case, the emergency outage will be planned based on CHAMPS service-level agreements in order to minimize business impacts.

CNSI will support this effort with the following deliverables:

- Operational Reports
- Performance Report
- Issue Resolution Plan

## Section 3: General Assumptions

This statement of work is presented based on the following assumptions:

### Project Assumptions

1. All required participants, including MDCH, and DTMB staff and other affected departments, are available and will participate in meetings and CAD sessions, as needed.
2. All systems, including all affected systems that interface with CHAMPS, will be ready to support testing as defined by the project work plan.
3. The functional business requirements currently defined as the ODS requirements will be used as the basis for the requirements validation activity. Should these requirements prove to be incomplete or inaccurate, change management may be necessary to extend or modify the timeline for this effort.
4. The implementation of the ODS will align with the agreed operational release calendar.
5. The solution developed for the CHAMPS ODS Project will meet all applicable State technical and security standards.
6. The solution for the ODS Project will require updates to the CHAMPS operations or disaster recovery documentation.
7. The solution developed for the ODS Project will require new hardware and changes to the State's infrastructure.

## Section 4: Pricing

This section presents CNSI's fixed-price, overall labor cost for completing the CHAMPS ODS Project. The cost was derived based on the expected effort required, as presented in our initial work plan, composed of the 4 phases depicted Figure 5. The total fixed-price labor cost for the CHAMPS ODS Project is \$ 1,100,700.00.