



**STATE OF RHODE  
ISLAND  
UNIFIED  
INFRASTRUCTURE  
PROJECT**

**MONTHLY IV&V ASSESSMENT  
SEPTEMBER 2016**

**VERSION 1.1  
STATUS: FINAL**

**DATE: OCTOBER 31, 2016**

**Document Information**

| Document Title                   | Monthly IV&V Assessment             |
|----------------------------------|-------------------------------------|
| Version                          | 1.1                                 |
| Author                           | William Riippi, CSG Project Manager |
| Owner (if different from Author) |                                     |

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**Amendment History**

| Document Version | Date       | Author/Reviewer | Modification  |
|------------------|------------|-----------------|---|
| 1.0              | 10/25/2016 | William Riippi  | Initial Release, Submitted onto CALT                                |
| 1.1              | 10/31/2016 | William Riippi  | Minor updates to Table 5 and 6 per State request, Submitted to CALT |

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# 1. OVERVIEW

## 1.1 Purpose

The purpose of this report is to provide the Independent Verification and Validation (IV&V) Monthly Assessment for the Rhode Island Unified Health Infrastructure Project (RI UHIP). CSG Government Solutions' (CSG) IV&V services provide an independent perspective of project activities, plans, and processes to identify risks and make actionable recommendations on how those risks can be addressed or planned for and managed.

This Monthly IV&V Assessment is an end of the month assessment and establishes a baseline for ongoing monthly assessments. This assessment provides a snapshot of project health, observations, and actionable recommendations to address risks identified during the month.

The CSG IV&V team analyzed the governance practices, current activities, processes, procedures, project documents, completed deliverables, and other project artifacts, as well as conducted interviews with some of Deloitte's team members and observed project meetings. This document contains information collected from September 1, 2016 through September 30, 2016.

The Monthly IV&V Assessment for the RI UHIP is expected to provide the following benefits:

- A high-level management review of the RI UHIP processes and product risk
- Early identification, planning, and resolution of risks and issues
- Increased likelihood of project success
- Increased overall project quality

## 1.2 Background

The RI UHIP was launched on January 22, 2013. The goals of the RI UHIP focused on implementing an Affordable Care Act (ACA)-compliant health insurance marketplace and an integrated eligibility system solution via two phases.

- **Phase 1:** Implemented a fully compliant ACA health insurance marketplace by October 1, 2013. Phase 1 officially ended after the implementation of Enhancement Release 6.6 on February 1, 2016.
- **Phase 2:** Implemented an integrated eligibility system that included programs such as TANF, SNAP, and other human services programs on September 13, 2016.

CSG has been engaged to provide IV&V services to the RI UHIP. The CSG approach to IV&V for the RI UHIP is tailored to meet the specific requirements of this project. Currently, the RI UHIP is in maintenance and operations.

## 2. PROJECT HEALTH DASHBOARD: SEPTEMBER 2016

The summary dashboard of the RI UHIP Project as of September 30, 2016 is provided in Table 1. Overall, the Release 7 Risk is currently found to be Moderate. The project successfully met the September 13, 2016 Go-Live date and is currently operational. However, since Go-Live a number of open defects have been found that Deloitte and the State are actively working to resolve. The State should continue to focus on implementing the required corrective actions on priority defects. Key activities in October should continue to include the planning, development, and implementation of functionality not included in the initial Go-Live, but required to support future operations (e.g., Open Enrollment). See Section 4.3 for supporting detailed observations and recommendations.

**Table 1 – Project Health Dashboard**

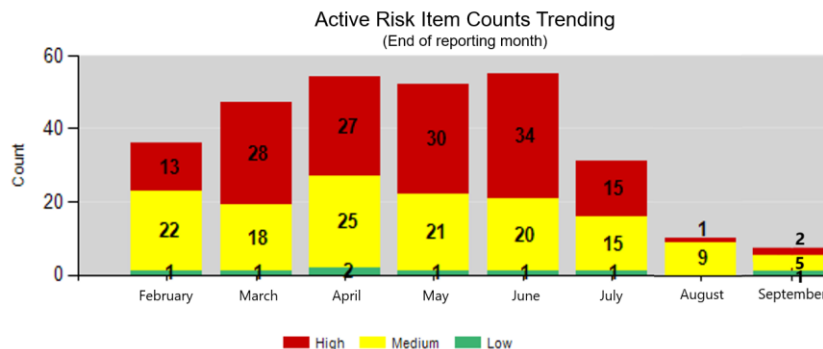
| Rhode Island Unified Health Infrastructure Project |          |       |          |         |       |                    |         |       |          |          |       |
|--|----------|-------|----------|---------|-------|--------------------|---------|-------|----------|----------|-------|
| Phase 2 – Release 7                                |          |       |          |         |       |                    |         |       |          |          |       |
| PROJECT STATUS INDICATORS <sup>1</sup>             |          |       |          |         |       |                    |         |       |          |          |       |
| SCOPE  |          |       | COST     |         |       | SCHEDULE/RESOURCES |         |       | QUALITY  |          |       |
| Previous   | Current  | Trend | Previous | Current | Trend | Previous           | Current | Trend | Previous | Current  | Trend |
| Moderate   | Moderate | N/C   | Low      | Low     | N/C   | Low                | Low     | N/C   | Low      | Moderate | -     |

<sup>1</sup>Reference

| Project Status Indicators |   | Trend Indicators |
|---------------------------|---|------------------|
| Low                       | On-track, only minor issues                               | + = Improving    |
| Moderate                  | One or more areas of concern.                             | - = Declining    |
| High                      | Significant issues that limit the success of the project. | N/C = No change  |
| N/A                       | Not applicable  |                  |

Figure 1 provides the risk trend, based on the IV&V observations, for the period of February through September 2016.

**Figure 1 – Risk Trend Dashboard**





## 3. KEY OBSERVATIONS AND RECOMMENDATIONS

Key observations and recommendations identify those areas that need immediate attention and focus to improve or maintain the health of the project. The following sections summarize our observations and recommendations for those categories that received a status of high risk and some key observations and recommendations for categories that received a status of medium risk during this assessment period.

The detailed observations in Section 4.3, for which the risk rank is rated as high risk or medium risk, should be carefully reviewed and risk response strategies and plans developed. For those observations rated with a low or none risk rank, the State should continue to monitor these areas to assure controls and processes remain effective.

The key observations and key recommendations are divided into the following Risk Assessment Areas of Focus from the Project Health Dashboard:

- Scope – Are project activities properly defined and managed throughout UHIP?
- Cost – Are budget/funding requirements defined and managed?
- Schedule/Resources – Is the schedule defined, managed, and properly resourced?
- Quality – Are quality processes (System Development Life Cycles and Project Management Processes) defined and followed resulting in quality deliverables?

### 3.1 Scope

The scope category measures progress against requirements to assure existing requirements are delivered and new or changed requirements are addressed. Change Control impacting the project's schedule, resources requirements, and budget are considered.

#### 3.1.1 Progress Since Last Report

The **Phase 2 scope remains a moderate risk**. CSG recommends the State should continue to manage scope and implement applicable corrective action and risk mitigation.

#### 3.1.2 Observations and Recommendations

- **Data feed from RIBridges to Data Warehouse**
  - ✓ **Observation 155**
    - The daily batch feed of specified data fields from RIBridges to the Human Services Data Warehouse (HSDW) has been developed, but it is not working as expected.
  - ✓ **Recommendation**
    - Review of the development efforts pertaining to CSM functionality to determine if a workaround been established and accepted by OMR/EOHHS should be performed.

✓ **Current Status**

- The batch feed has been successfully implemented. This Observation is closed.

➤ **Change Management Control**

✓ **Observation 218**

- Changes have been made by Fidelity Information Services (FIS), a Trading Partner, without proper change management control and coordination with the RIBridges project team resulting in system incidents. This has occurred with FIS on at least 2 occasions impacting the production system operations.

✓ **Recommendation**

- Assure adequate change management processes are in place and consistent to support coordination between all stakeholders, including contractors, subcontractors, and trading partners.

✓ **Current Status**

- Change management processes related to this observation are under evaluation.

## 3.2 Cost

The cost category measures progress against approved and planned budget allocations.

### 3.2.1 Progress Since Last Report

Since the last reporting period, the **Phase 2 cost remains a low risk**. The State has mitigated risks related to project expenditures. State should continue to consider actions to control cost and mitigate financial risk.

### 3.2.2 Observations and Recommendations

- **No key Observations in this period**

## 3.3 Schedule/Resources

The schedule/resources category measures the quality and validity of the project schedule. It also measures progress against a valid, baselined work plan and verifies the project team is meeting the timeframes documented within that plan.

### 3.3.1 Progress Since Last Report

The **Phase 2 schedule and resources remains a low risk**. The State should continue to focus on expediting critical activities and assure adequate State and contractor resources are available to support the overall schedule for post Go-Live and M&O activities.

### 3.3.2 Observations and Recommendations

#### ➤ UHIP-RIBridges Security Audit Delayed

##### ✓ Observation 215

- UHIP HIX/IE SOC 2 Type II Security Audit has been postponed and the State has confirmed that the audit will be conducted post go-live.

##### ✓ Recommendation

- The scope of the security audit and the specific date and time for the conducting the audit should be set as soon as possible. Additionally, the audit should be conducted every other year per the contract.

##### ✓ Current Status

- AT101 has been started by a 3<sup>rd</sup> party contractor and it covers a portion of the Service Organization Control (SOC) 2 audit. A number of security related assessments have been performed, including two 3<sup>rd</sup> party contractor Security Assessment Reports (SARs), multiple external penetration tests, and 3<sup>rd</sup> party contractor vulnerability scans, code scans, and penetration tests. Additionally, CMS has accepted the system to be MARS E 1.0 and 2.0 compliant.

## 3.4 Quality

The quality category measures compliance with design including defect levels identified during testing, production defect identification, and the ability to quickly resolve quality issues. It also serves to evaluate the adherence to project management processes outlined within the project management plan, system development life cycle processes, and via the quality of all deliverables.

### 3.4.1 Progress Since Last Report

The **Phase 2 project quality is a moderate risk**. IV&V increased the quality risk from low to moderate in September as a result of many incidents being found that impact operations and delivery of client benefits. The incidents are being prioritized and fixed, but many remain open and new incidents continue to be found. The State should continue to work with Deloitte and assure that a comprehensive strategy is in place to expedite and manage correction of the problems, and the required corrective actions are implemented.

### 3.4.2 Observations and Recommendations

#### ➤ Key Performance Indicators (KPIs) Needed

##### ✓ Observation 217

- Key Performance Indicators (KPIs) have not been established to support measuring progress toward system stabilization.

##### ✓ Recommendation

- Deloitte should set specific KPIs and target dates, mutually agreed upon with the State, to meet the established levels. Once the KPIs are established, daily reporting should include trends toward the targets. Action plans should be set and managed to assure acceptable progress.
- ✓ **Current Status**
  - The State and Deloitte are considering the appropriate KPI's and targets.
- **Defects Resolved in UAT/Pilot Found in Production**
  - ✓ **Observation 219**
    - Incidents found in production (e.g. 834 transactions, application errors, data sync) were similar, and in some cases identical, to those found and resolved in UAT and in Hybrid Pilot. Based on this it is evident that resolutions to defects found in UAT and Pilot were not fully deployed in production.
  - ✓ **Recommendation**
    - Deloitte should assure a plan is in place to implement all code/data fixes and updates consistently in production and other relevant test environments throughout the system life cycle.
  - ✓ **Current Status**
    - This observation and recommendation are being considered.
- **CMS Testing Requiring Attestations**
  - ✓ **Observation 220**
    - Several CMS services require attestation. However, since the related services are not complete, IV&V cannot evaluate the services to provide the required attestation. Since IV&V services are currently funded through December 2016, all the applicable services must be completed in the November timeframe to assure IV&V is available to perform the services.
  - ✓ **Recommendation**
    - Testing these services should be planned and scheduled for completion by the end of October 2016, to allow IV&V sufficient time to verify and validate the results.
  - ✓ **Current Status**
    - The observation and recommendation are under consideration and the subject attestations are pending.
- **Existing Plan Deliverables not Updated and Revised**
  - ✓ **Observation 111**

- The system architecture, DR plan, capacity plan, database development, configuration plan, and others have not been updated with the new Phase 2 single database design. These deliverables will be required for the maintenance period and future system audits on the UHIP system.

✓ **Recommendation**

- The State should acknowledge and encourage Deloitte to update the technology and database related existing deliverables. IV&V reviewed selected technology deliverables and the majority reviewed were not up-to-date. Additionally, the Contact Center Integration (CCI) deliverables are not detail oriented from a technical perspective.

✓ **Current Status**

- The observation and recommendation are under consideration.

➤ **Section 508 Compliance (Accessibility) Testing**

✓ **Observation 98**

- Section 508 requires that all website content be accessible to people with disabilities. There was no accessibility test in UAT and Deloitte has executed 17 related test cases in SIT for Phase 2.

✓ **Recommendation**

- The State should determine if a SME is required to perform additional accessibility testing.

✓ **Current Status**

- Deloitte is scheduling an SME to perform additional accessibility testing.

## 4. DETAILED MONTHLY IV&V ASSESSMENT

### 4.1 Approach

The CSG IV&V team’s approach to the Monthly IV&V Assessment is to assess the RI UHIP to understand the environment, project goals and objectives, and the critical project success factors so project risks and actionable recommendations are documented. In areas of the assessment where the project has minimal activity (due to the current phase of the project), we offer proactive advice where appropriate. For items in which we gain early insight, the team has taken an approach to err on the side of caution and to raise any perceived risk in this Monthly IV&V Assessment. This enables those risks to be reviewed and addressed in a timely manner, if needed.

All information received by September 30, 2016 is included in this report. Information received after this date will be included in the next monthly assessment scheduled for October 2016. The Monthly IV&V Assessment documents current observations and recommendations and establishes the baseline for future Monthly IV&V Assessments.

#### 4.1.1 Interviews

The IV&V team schedules interviews with key personnel. Follow up interviews are conducted as needed so that the IV&V team maintains a complete understanding of the project risks.

#### 4.1.2 Project Meetings

IV&V team members attend project meetings and review formal meeting minutes produced from these meetings to assure that summaries are complete and accurate and all decisions, action items, risks, and issues are appropriately noted. Observing project meetings enables the IV&V team to maintain a full understanding of project processes, current activities, and status and to gain additional insight and understanding of project risks.

#### 4.1.3 Document Review

Formal deliverable reviews are a fundamental validation activity provided by the IV&V team. For each deliverable, the IV&V team conducts a review that is tailored to the subject matter presented. Since the content and purpose of each deliverable varies, the type of review also varies. The IV&V team uses the appropriate industry standards and guidelines in the review of the deliverables. In some cases, the standard may have been specified via contractual documents, while in other cases it may be a best practice for the specific subject matter. In any event, prior to its review, we determine what standards are applicable to the deliverable and whether or not compliance is required. For every deliverable, we verify its correctness, accuracy, completeness, and readability. We also participate in a walkthrough of the deliverable, as appropriate. This walkthrough allows the IV&V team to become familiar with the deliverable and ask specific questions about the deliverable’s content.

For subsequent resubmission of DDI vendor deliverables, the IV&V team conducts a review and provides the UHIP stakeholders with a relevant observation of the changes found between the last and most

current submission of the deliverable. Any relevant observations are logged in the TeamCSG™ tool and then reported in the next Weekly Status Report.

## 4.2 Tools

### 4.2.1 *TeamCSG<sup>SM</sup> Tracker: Risk Assessment Model*

***TeamCSG<sup>SM</sup> Tracker: Risk Assessment Model*** guides the IV&V team through identifying and evaluating the type and level of risk (low, medium, high) a project may encounter. This allows for a snapshot of level of risk in the project. The risk level helps the RI UHIP and vendor project teams focus their efforts on planning for and responding to key risk areas. The Risk Assessment Model encompasses industry standards for project management and system engineering, such as PMBOK and IEEE standards.

The Risk Assessment Model is used to prioritize and assess the impact of items according to business functions and specific risks. These risk assessment items can be tracked from one review period to the next to determine increasing or decreasing risk levels and project health, not only at an item level but also within a category or subcategory.

The Risk Assessment Model is broken down into three major risk domains: 1) Project Management, 2) IT (information technology) Infrastructure, and 3) SDLC - System Development Life Cycle.

## 4.3 Detailed Observations and Recommendations

Below is a detailed listing of the observations and recommendations completed by the CSG IV&V team. The following status tables of observations and recommendations are included.

- **Table 2 – New Observations and Recommendations**
- **Table 3 – Closed Observations and Recommendations**
- **Table 4 – Observations and Recommendations Monitored**

Each table is developed from the information captured in the *TeamCSG<sup>SM</sup> Risk Assessment Tracking* tool and *TeamCSG<sup>SM</sup> Risk Assessment Model* categories for reporting, tracking, and follow-up. Information provided represents the status as of the last day of the reporting period. The CSG IV&V team migrated from a legacy observation tracking tool to the *TeamCSG<sup>SM</sup> Risk Assessment Tracking* tool in February 2016. As required for tracking legacy observations, an identification number (ID) referenced within the title of an observation, under the Title column, denote the original ID assigned by the legacy observation tracking tool.

### 4.3.1 New Observations and Recommendations

The new observations and recommendations opened during this period are listed in Table 2 were new in September.

**Table 3 – New Observations and Recommendations**

| ID #                | CSG POC     | Big Rocks Category | Dashboard Category | Title                                  | Actions | Observations  | Recommendations   | Risk Rank   |
|---------------------|-------------|--------------------|--------------------|--|---------|---|---|-------------|
| <a href="#">217</a> | Bill Riippi | M & O              | Quality            | KPIs and Acceptable Performance Levels |         | <p>KPIs and acceptable system performance levels have not been established to support measuring progress toward system stabilization.</p> <p>Without establishing specific performance levels per industry standards and associated target dates to reach the desired levels, it will be very difficult to objectively measure and manage progress toward system stabilization.</p> | <p>Deloitte should set specific performance levels, mutually agreed upon with the State, and target dates to meet the established levels. Once the targets are established, daily reporting should include trends toward the targets. Action plans should be set and managed to assure acceptable progress.</p> | <b>High</b> |

| ID #                | CSG POC        | Big Rocks Category | Dashboard Category | Title   | Actions | Observations  | Recommendations   | Risk Rank     |
|---------------------|----------------|--------------------|--------------------|---|---------|---|---|---------------|
| <a href="#">219</a> | Bobby Malhotra | M & O              | Quality            | Defects Resolved in UAT/Pilot Found in Production |         | Incidents found in production (e.g. 834 transactions, application errors, data sync) were similar, and in some cases identical, to those found and resolved in UAT and in Hybrid Pilot. Based on this, it is evident that resolutions to defects found in UAT and Pilot were not fully deployed in production. The reoccurrence of problems that were previously identified and fixed during testing, results in additional work to track and evaluate the repeated incidents. It also suggests that the process for tracking and implementing resolutions found in testing prior to Go-Live was not adequate and/or fully executed. The overall cost of fixing problems in production, including related cost of impacts to customer services, significantly exceeds the cost to fix problems prior to deployment. | Deloitte should assure a plan is in place to implement all code/data fixes and updates consistently in production and other relevant test environments throughout the system life cycle.  | <b>High</b>   |
| <a href="#">218</a> | Bill Riippi    | Communications     | Scope              | Change Management Control                         |         | Changes have been made by Fidelity Information Services (FIS), a Trading Partner, without proper change management control and coordination with the RIBridges project team that resulted in system incidents. This has occurred with FIS on at least 2 occasions that impacted the production system operations. Without consistent management and coordination of changes on the project between all stakeholders, overall configuration control is very difficult and incidents due to conflicting changes are likely to continue.   | The State should assure adequate change management processes are in place and consistent to support coordination between all stakeholders, including contractors, subcontractors, and trading partners. Implementation of the change management processes should be consistent. | <b>Medium</b> |

| ID #                | CSG POC        | Big Rocks Category | Dashboard Category | Title                                 | Actions | Observations  | Recommendations  | Risk Rank     |
|---------------------|----------------|--------------------|--------------------|---------------------------------------|---------|---|--|---------------|
| <a href="#">220</a> | Gloria Darby   | Testing            | Quality            | CMS Testing Requiring Attestations    |         | <p>Several CMS services require IV&amp;V attestation. However, since the related services are not complete, IV&amp;V cannot evaluate the services to provide the required attestation. The related services and applicable status include:</p> <ul style="list-style-type: none"> <li>• Blueprint – State is currently conditionally certified and can remain so indefinitely.</li> <li>• CMS Disaster Recovery – Requires testing VLP and D1H31 from the DR site.</li> <li>• SBM Enrollment - To facilitate automated APTC and advance CSR payments to SBM issuers.</li> </ul> <p>Deloitte is currently requesting a CR to implement.</p> <p>IV&amp;V is not aware if these services are scheduled for completion or if CMS has imposed a deadline.</p> <p>CMS documentation notes that IV&amp;V can provide the attestation. Since IV&amp;V services are currently funded through December 2016, all the applicable services must be completed prior to December to assure IV&amp;V is available to perform the services.</p> | Testing these services should be planned and scheduled for completion by the end of October 2016, to allow IV&V sufficient time to verify and validate the results.  | <b>Medium</b> |
| <a href="#">215</a> | Bobby Malhotra | Technical          | Schedule/Resource  | UHIP-RIBridges Security Audit Delayed |         | <p>UHIP HIX/IE SOC 2 Type II Security Audit has been postponed and the State has confirmed that the audit will be conducted post go-live. Without performing continuous security audits, it will be difficult to maintain the identification of potential security threats, assess how to address them, and adapt to evolving security hazards in any rational or organized way using empirical data.</p>   | <p>The scope of the security audit and the specific date and time for the conducting the audit should be set as soon as possible. Additionally, the audit should be planned to be conducted every other year per the contract.</p> | <b>Low</b>    |



4.3.2 Closed Observations and Recommendations

Table 3 – Closed Observations and Recommendations

| ID #                | CSG POC        | Big Rocks Category | Dashboard Category | Title  | Actions  | Observations  | Recommendations  | Risk Rank |
|---------------------|----------------|--------------------|--------------------|--|--|---|--|-----------|
| <a href="#">172</a> | Bobby Malhotra | Technical          | Scope              | Annual Penetration Test Not Conducted            | 09/09/16 Bob M - The State has conducted penetration testing, as well as contracted an independent SAR. The State plans to continue performing the testing in the future and not require Deloitte to perform the penetration testing per the original contract. This observation is closed in agreement with the State.<br>05/27/16 Bob M - Changed to Avoidance. There is no plan to date for conducting penetration testing on UHIP system prior to go-live by Deloitte through this contractual item. | Deloitte is contracted to perform a network penetration test every year with the results to be published to the State within 14 days of completion. The penetration test results are important and represent the potential vulnerabilities in the system and the associated security risks. Without the test results and identified risks, an evaluation of the system vulnerabilities cannot be performed. | The State should require Deloitte to immediately conduct the network penetration test and submit the results to the State for review within 14 days of completion.   | Medium    |
| <a href="#">100</a> | Bobby Malhotra | Requirements       | Quality            | Phase 2 - Requirement Traceability Matrix - #371 | 09/12/16 Bob M - Closing the observation as IV&V has reviewed the Functional RTM v7.0 (submitted to the State and CMS/FNS on 9/9) and validated that the test cases have   | The current RTM partially supports the new centralized database approach for the UHIP architecture framework. The citizen and the worker portal applications will be integrated with shared functionalities. This will be a significant change to existing  | As changes are implemented, Deloitte and the State should perform the required updates to the RTM. The RTM will help ensure that the project requirements are met as well as track all changes made to the system. | Medium    |

| ID #                | CSG POC        | Big Rocks Category | Dashboard Category | Title   | Actions   | Observations  | Recommendations  | Risk Rank |
|---------------------|----------------|--------------------|--------------------|---|---|---|--|-----------|
|                     |                |                    |                    |   | been linked to the respective requirements. 09/9/16 Bob M- Functional RTM has been published by the Deloitte PMO on 09/9 to CMS/State/IV&V. IV&V will be reviewing the RTM the week of 09/12 and will update/close the observation accordingly. | architecture, including security and shared application frameworks. Without an updated RTM it will be difficult for the State to interpret and keep track of the requirements. The RTM helps to create a downstream and upstream flow of connecting software requirements to product requirements.  |  |           |
| <a href="#">188</a> | Bobby Malhotra | Technical          | Quality            | HSRI-IES Code Quality - Error Handling / Exception Handling | 09/12/16 Bob M – This observation is closed. IV&V will perform Code Review #10 (scheduled for 11/15/16 completion) to evaluate production code.   | The Phase 2 “HSRI-IES” code used for the ninth Bimonthly Code Review Report, had following issues identified on Error / Exception Handling:<br>1) Signature Declare Throws Exception- Observed in several classes a method/constructor explicitly throwing java.lang.Exception making unclear which exceptions the methods will throw.<br>2) Catching Throwable- Observed in some classes, code is either Catching Throwable or Error that will also catch OutOfMemoryError and InternalError.<br>3) Catching Generic Exception- In several places instead of adding different catch blocks to the try block, the programmer simply wrapped the method calls in a | The State should require Deloitte to insist their development team follow industry’s best practices while developing code. The code quality checklist should be provided to the development team and closely monitor if they make sure to RUN Sonar and complete peer code reviews before checking in class to the repository. Additionally, 1) The developer should either use a class derived from RuntimeException or a checked exception. A method should only throw the exceptions that are relevant to its interface. Exception is the "root" of all exception, the developer should try to be more specific. Methods should not declare to throw the exception, only declare to throw | Medium    |

| ID #                | CSG POC        | Big Rocks Category | Dashboard Category | Title                                | Actions   | Observations   | Recommendations  | Risk Rank |
|---------------------|----------------|--------------------|--------------------|--------------------------------------|---|--|--|-----------|
|                     |                |                    |                    |                                      |   | try/catch block that catches generic Exceptions. Another consequence of the generic catch clause is that logging is limited because catch does not know the specific exception caught.   | the specific types of exceptions that can happen and re-throw in the catch clause. 2) Catch Exception instead of Throwable. Avoid catching Throwable; developers should never try handle error. Throwable is a parent of Exception and Error. For example, OutOfMemoryException is out of the program's scope and hence the developer should not consider these instances while coding. The recommended approach is that the application should not try to recover from errors such as these. Throwable and Error classes should not be caught. Only Exception and its subclasses should be caught. 3) Avoid catching generic exceptions such as NullPointerException, RuntimeException, Exception in try-catch block. |           |
| <a href="#">187</a> | Bobby Malhotra | Technical          | Quality            | HSRI-IES Code Quality - Organization | 09/12/16 Bob M – This observation is closed. IV&V will perform Code Review #10 (scheduled for 11/15/16 completion) to evaluate production code. | The Phase 2 "HSRI-IES" code used for the ninth Bimonthly Code Review Report, had following issues identified:<br>1) Comments- The IES Code is a transfer solution; the majority of the comments in the artifacts reviewed were old and not updated. Additionally, there were insufficient comments on majority all the classes and methods reviewed. | The State should require Deloitte to insist their development team follow industry's best practices while developing code. The code quality checklist should be provided to the development team and closely monitor if they make sure to RUN Sonar and complete peer code reviews before checking in class to the repository.<br>Additionally, 1) Well nested Class   | Medium    |

| ID #                | CSG POC        | Big Rocks Category | Dashboard Category | Title                                      | Actions   | Observations   | Recommendations  | Risk Rank |
|---------------------|----------------|--------------------|--------------------|--|---|--|--|-----------|
|                     |                |                    |                    |  |   | <p>2) TODOs- TODO tags are commonly used to mark places where some more code is required, but which the developer wants to implement later. This could result severe issues in later time, if the developer forgets to get back to that tag.</p> <p>3) Empty methods- Observed in some modules, methods are empty. Additionally, no comments are there explaining why the method is empty without throwing any exception.</p> <p>4) Commented Code- Observed commented out code in the majority of the classes in most reviewed modules. A best practice is to delete unwanted code. This practice alleviates confusion and encourages concise and easy to maintain code</p> | <p>and method comments should written in each class. All source files should begin with a copyright comment header that lists the class name, version information, date, and copyright notice. 2) "TODO" tags should be handled and task should be completed associated to the TODO comments before pushing the code into production. 3) Methods should not be empty Add a nested comment explaining why the method is empty, throw an UnsupportedOperationException or complete the implementation. 4) Avoid the retention of commented-out code or unwanted code in production</p> |           |
| <a href="#">155</a> | Bobby Malhotra | Technical          | Scope              | Data feed from RIBridges to Data Warehouse | <p>09/23/16 Bob M- Closing this observation as the batch feed has been successfully implemented.</p> <p>09/13/16 Bob M- IV&amp;V has requested an update on the development efforts pertaining to CSM functionality to determine if a workaround been established and</p> | <p>The daily batch feed of specified data fields from RIBridges to the Human Services Data Warehouse (HSDW) has not been developed by Deloitte. If the batch feed is not developed, clinical eligibility will not be able to be determined by the OMR.</p> <p>According to original requirements, Deloitte is required to create a daily batch feed of specified data fields from RIBridges to the Human Services Data Warehouse (HSDW), with the</p>  | <p>The State should ensure that Deloitte is working with HP to develop a daily batch feed for the HSDW prior to go live. Weekly meetings with a detailed plan should be scheduled between the State, Deloitte and HP. If the batch cannot be developed prior to go live, an alternate plan should be discussed to ensure that OMR would have current data for clinical eligibility determinations.</p>   | Medium    |

| ID #                | CSG POC        | Big Rocks Category | Dashboard Category | Title                             | Actions   | Observations  | Recommendations   | Risk Rank  |
|---------------------|----------------|--------------------|--------------------|-----------------------------------|---|---|---|------------|
|                     |                |                    |                    |                                   | <p>accepted by OMR/EOHHS.</p> <p>07/22/16 Bob M- IV&amp;V to request an update on the development efforts pertaining to CSM functionality. Check if CSM is part of Hybrid Pilot scope or next steps on testing activities.</p> <p>05/27/16 Bob M - Deloitte has been continuously providing the level of information and data informs of table extract to HPE for their development. UAT will be conducted on CSM tool prior to go-live per OHHS.</p> | <p>data to be exported determined through analysis and design to be performed by the Deloitte. To date, Deloitte has not developed a daily data feed from RIBridges to the HSDW. The Office of Medical Review (OMR) currently uses the Customer Service Management (CSM) tool to determine clinical eligibility. The CSM interfaces with data warehouse real-time to gather eligibility data of customers applying for benefits. Without a daily data feed from RIBridges, the Office of Medical Review (OMR) will be significantly impacted after go live. Clinical eligibility determinations will be based on outdated data.</p> |   |            |
| <a href="#">117</a> | Bobby Malhotra | Technical          | Quality            | UHIP-HIX/IE Security Audit - #395 | <p>09/23/16 Bob M- Closing this observation as new observation (ID 215) has been logged to reflect the status.</p> <p>09/09/16 Bob M - This is being reduced to Low Risk from High per State direction and based on the SAR and other security related activities conducted prior to Go-Live.</p>   | <p>UHIP-HIX/IE Security Audit Grant Thornton have been appointed to conduct the security audit on UHIP- HIX/IE. The State and Deloitte agreed upon having a SOC 2 Type II audit completed. Grant Thornton’s team have expressed some concerns conducting a SOC 2 audit and requested an AT101 audit instead. According to the Bridging document, the audit should be equivalent to SAS Level 2. There is uncertainty and a lack of</p>  | <p>The State should require Deloitte to provide detailed information on AT101. Additionally, the language in the bridging document should be closely reviewed before making any determinations. The state should immediately require the close review of the SAS level 2 to determine the scope of SOC 2 Type II.</p> | <b>Low</b> |

| ID #       | CSG POC      | Big Rocks Category | Dashboard Category | Title  | Actions   | Observations   | Recommendations  | Risk Rank     |
|------------|--------------|--------------------|--------------------|--|---|--|--|---------------|
|            |              |                    |                    |  |   | information available to the State with details to help them distinguish between both audits.  |  |               |
| <u>114</u> | Gloria Darby | Testing            | Quality            | Blueprint Testing Incomplete within Phase 1 - #392 | <p>09/30/2016 GD – This observation will be closed based on Deloitte’s plan to conduct testing of the remaining scenarios. For reference, a related observation (reference #216) is being opened regarding related testing requiring attestations by IV&amp;V.</p> <p>08/23/16 GD - Working with Deloitte to test and submit the remaining test scenarios for validation.</p> <p>04/04/16 GD - CSG will continue to monitor.</p> <p>03/24/16 GD - Deloitte has provided the State with a proposed implementation date. The State expects to implement the remaining scenarios in the July 2016 release.</p> | <p>Phase 1 is closing with Blueprint testing remaining incomplete. Achieving full accreditation as a SBM is dependent upon successful completion of Blueprint testing 6 scenarios remain outstanding, they have been postponed from one release to another to only be deferred once again. IV&amp;V attestation is required. The State of RI cannot be granted full certification as a SBM with testing scenarios incomplete. While CMS has not instituted a timeline for completion outside of the original 2013 date, deferring these test scenarios and business functionality into Phase 2 not only impacts the workload, timeline, but it also raises the concerns of additional costs.</p> | <p>It is recommended that the State require Deloitte to provide a timeline for completing testing, achieving attestation, and implementing the required functionality.</p> | <b>Medium</b> |

4.3.3 Monitored Observations and Recommendations

Table 4 – Observations and Recommendations Monitored

| ID #       | CSG POC        | Big Rocks Category | Dashboard Category | Title  | Actions   | Observations  | Recommendations  | Risk Rank |
|------------|----------------|--------------------|--------------------|--|---|---|--|-----------|
| <u>158</u> | Bobby Malhotra | Technical          | Scope              | Consolidated Database Design – Security Assessment | <p>08/31/16 Bob M- Changed the priority level to Medium from High. IV&amp;V to request update on this observation from the Deloitte and State on the status of encrypting the archival folder on SFTP.</p> <p>05/27/16 Bob M - Per MARS-E 1.0 Data at rest has to be encrypted or proper isolation needs to be in place. IV&amp; logged this as a finding in preliminary SAR deliverable.</p> | <p>During the development of the Database Consolidation Readiness Assessment Report, four of the security areas evaluated in the database implementation had the following issues identified. This detailed list was noted in the original report issued on 01/29/16.</p> <p>#129/412 (High/High) – Although the Oracle databases are using transparent data encryption for data at rest, other application layers including application servers, ETL tools, and secure FTP landing zones need to be reviewed for any storage of sensitive data.</p> <p>#132/415 (Medium/Medium) – The HIX/IES single sign-on session management design is not finalized and tested.</p> <p>#141/425 (Low/Low) – Access control policies and procedures for direct database access are not formalized in writing.</p> <p>Based on current information, the overall Probability and Impact ratings are both High.</p> <p>Implications: Sensitive data stored on disk (at rest) in unencrypted format is at risk for access from remote access over the network, at the operating system level, or physical access to the</p> | <p>The State should ask Deloitte to identify all infrastructure platforms and locations where sensitive data is ever at rest on disk and what options are in place or available to ensure this data is encrypted.</p> <p>The State should request Deloitte’s finalized session management design including how the risk of timeout and potential data loss will be mitigated.</p> <p>The State should evaluate the roles and responsibilities where direct database access is required and formalize processes and procedures to authorize and request additions, changes, and deletions of database access for staff.</p> <p>The State should consider the long-term support model and projected separation of roles and responsibilities that may be desired or needed down the road, if any.</p> <p>Technological alternatives exist to encrypt data at rest via disk partition encryption, encrypted file systems, and third-party</p> | Medium    |

| ID #      | CSG POC      | Big Rocks Category | Dashboard Category | Title   | Actions  | Observations   | Recommendations   | Risk Rank     |
|-----------|--------------|--------------------|--------------------|---|--|--|---|---------------|
|           |              |                    |                    |   |  | <p>drives themselves.</p> <p>Session timeout within one application (e.g., IES) while user actions are focused in the other (e.g., HIX) could potentially result in data loss.</p> <p>Lack of formalized access controls may result in improper authorization or incomplete audit trails for access to the database.</p>   | <p>secure FTP packages that transparently encrypt individual files before storing them on disk. The State security team should collaborate with Deloitte to ensure all data at rest is properly protected.</p> <p>The State should incorporate database access controls with the established controls for application-specific security already in place.</p> |               |
| <u>98</u> | Gloria Darby | Quality Assurance  | Quality            | Section 508 Compliance (Accessibility) Testing - #368 | <p>09/30/2016 GD: The State should determine if a SME is required to perform additional accessibility testing.</p> <p>08/23/16 GD: Deloitte has executed 17 related test cases in SIT (this small number of cases does not seem to be sufficient for such a large implementation).</p> <p>06/03/16 BR: An SME to support Section 508 compliance testing remains unidentified. There are no current plans for Section 508</p> | <p>Section 508 requires that all website content be accessible to people with disabilities</p> <p>It was inadvertently discovered that a list of codes were being excluded from Deloitte's accessibility testing, and the list was not properly documented within any deliverables. This prompted Deloitte to update the Phase 1 Detailed Test Plan (outside of the Change Management process) with the list of exclusions.</p> <p>Since there is no accessibility test in UAT, the State should require Deloitte to provide a letter of attestation when the accessibility testing has been completed; however, this does not equate to the true user experience.</p> <p>The State could face serious fines if it is later discovered that the application is not truly 508 compliant and end-users with disabilities are not able to fully utilize the system.</p> | <p>CSG recommends the State identify testers who are visually or hearing impaired to test the accessibility functionality.</p>  | <b>Medium</b> |

| ID #       | CSG POC        | Big Rocks Category | Dashboard Category | Title   | Actions  | Observations  | Recommendations  | Risk Rank     |
|------------|----------------|--------------------|--------------------|---|--|---|--|---------------|
|            |                |                    |                    |   | compliance testing prior to Go-Live. Deloitte's attestation remains the only justification for compliance.   |   |  |               |
| <u>111</u> | Bobby Malhotra | Requirements       | Quality            | Existing Plan Deliverables not Updated and Revised - #388 | <p>09/09/16 Bob M - Majority of the technology deliverables are not up to date. Additionally, CCI deliverables are not detail oriented from a technical perspective.</p> <p>08/31/16 Bob M - Degrading the Risk Priority from High to Medium as the process has been established to update the existing technical deliverables. IV&amp;V to provide feedback on technical details included within CCI deliverables to the State by 9/7/16.</p> | <p>The system architecture, DR plan, capacity plan, database development, configuration plan, and others have not been updated with the new Phase 2 single database design. These deliverables will be required for the maintenance period and future system audits on the UHIP system.</p> <p>Additionally, the total number of environments, servers, and licensed software installations may be in excess of original planned and licensed quantities that could incur additional licensing costs.</p> | <p>The State should acknowledge and encourage Deloitte to update the technology and database related existing deliverables. The State should identify all essential technical documents for Deloitte to update to reflect the single database design.</p> <p>The State should request a Software Licensing Analysis and True-Up from Deloitte to provide an audit and balancing of all ordered versus used software to ensure compliance with licensing terms.</p> | <b>Medium</b> |

## 4.4 Catalog of Review

This section includes a list of the RI UHIP interviews, meetings observed, and materials reviewed by the CSG IV&V team during this Monthly IV&V Assessment.

### 4.4.1 Interviews

This section provides a listing of personnel interviewed during the month.

**Table 5 – Project Stakeholders Interviewed**

| Project Stakeholders Interviewed | Title or Team                  | Organization                       |
|----------------------------------|--------------------------------|------------------------------------|
| Vanessa Doorley                  | RI UHIP Project Manager        | Office of Digital Excellence       |
| Thom Guertin                     | RI Chief Digital Officer / CIO | RI Department of Administration    |
| Phil Silva                       | RI UHIP Technology Lead        | Division of Information Technology |
| Deb Merrill                      | RI UHIP Technology Team        | Division of Information Technology |
| Sumit Ohri                       | CTO HealthSource RI            | HealthSource RI                    |
| Kiernan Conn                     | CIO                            | HealthSource RI                    |
| Kiran Hegde                      | USI Manager                    | US India/Deloitte (USI)            |
| Karthik Banda                    | USI Technical Specialist       | US India/Deloitte (USI)            |
| Srinivas Piratla                 | USI Technical Manager          | US India/Deloitte (USI)            |
| Iyer Venky                       | Technical Lead                 | Deloitte                           |
| Rakesh Chandrasekaran            | Technical consultant           | Deloitte                           |
| Hemang Dholakia                  | Infrastructure lead            | Deloitte                           |
| Jeff Willis                      | M&O Manager                    | Deloitte                           |

#### 4.4.2 Meetings Attended

This section provides a listing of meetings observed.

**Table 6 – Meetings Attended**

| Project Meetings Attended                           | Participants            |
|---|-------------------------|
| Technical Status Meetings                           | State and Deloitte      |
| IV&V Observations, Risks and Issues Update Meetings | State and Deloitte      |
| Phase 2 HIX/IE Batches discussion                   | State and Deloitte      |
| Weekly Post-ERT and R7.1 Defect Deep Dive Meeting   | State and Deloitte      |
| Interface Thread Meeting                            | State and Deloitte      |
| State Internal Tech Status Meeting                  | State                   |
| Implementation Activities and Readiness Meetings    | State and Deloitte      |
| Weekly RIBridges – MMIS discussions                 | State, Deloitte and HPE |
| Conversion Readiness Meetings                       | State, Deloitte and NG  |
| Security Readiness Meeting                          | State and Deloitte      |
| Weekly Infrastructure Readiness Meeting             | State, Deloitte and NG  |
| Implementation and Contingency Thread Meeting       | State, Deloitte and NG  |
| M&O Readiness Meeting                               | State, Deloitte and NG  |
| M&O Thread Jira Meeting                             | State, Deloitte and NG  |
| Command Center Dry Run                              | State, Deloitte and NG  |
| M&O Thread: Data Validation and Fast Lane Meeting   | State, Deloitte and NG  |
| Weekly IV&V Status Meeting                          | State                   |
| RIBridges Daily Triage Meetings                     | State, Deloitte and NG  |
| RIUHIP Production Daily Health Meetings             | State, Deloitte and NG  |
| HSRI Problem Management Meeting                     | State, Deloitte and NG  |
| Multi Agency Finance Committee Meetings             | State                   |

### 4.4.3 Documents and Files Reviewed

This section provides a detailed listing of all documents reviewed during the month.

**Table 7 – Documents and Files Reviewed**

| Documents and Files Reviewed  |
|---|
| Reviewed Deloitte’s list of security implementation activities and the risk register        |
| Reviewed Release 7 interfaces tracker with timeline and schedule                            |
| Continued reviewing technical observations and risks with the State                         |
| Reviewed KPIs and daily operations report   |
| Reviewed M&O activities and the risk register   |
| Reviewed the Contact Center Integration Deliverables for availability of technology details |
| Reviewed Daily Cutover plan updates   |
| Reviewed Budget Narrative CO 40   |
| Reviewed implementation Plan 4 of 4 document  |
| Reviewed Post Go-Live releases notes  |
| Reviewed production defects logged onto Executive Reporting Dashboard                       |
| Reviewed Post Go-live Root Cause Analysis reports on Priority 1 issue                       |
| Reviewed Batch Schedule and Calendar for the month of September and October 2016            |
| Reviewed MMIS defects tracker   |
| Reviewed RI UHIP Production Daily Health and Triage Call Reports                            |
| Reviewed Conversion Training Materials 4 of 4   |
| Monitored RIBridges Daily Operations Progress   |

## 5. DELIVERABLE SIGNOFF AND APPROVAL

The following approval form is used to indicate that this Project Deliverable, the Rhode Island Unified Health Infrastructure Project Monthly IV&V Assessment, has been reviewed by the State and all the necessary project stakeholders and the authorized signers accept and approve the content herein.

Unified Health Infrastructure Project

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### State Approvals

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| CSG Monthly Status Report   |       |
|---|-------|
| Conditional Deliverable Information   |       |
| Conditions of Acceptance:   |       |
| How Conditions Were Met:  |       |
| Date Resubmitted for Final Acceptance:  |       |
| Conditional Deliverable Signoff   |       |
| CSG:  | Date: |
| <input type="checkbox"/> Approved With Indicated Conditions <input type="checkbox"/> Not Approved |       |
| State Representative:   | Date: |
| Final Deliverable Signoff   |       |
| CSG:  | Date: |
| DOA Representative:   | Date: |

