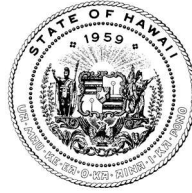


DAVID Y. IGE
GOVERNOR



DEPT. COMM. NO. 38
DOUGLAS MURDOCK
CHIEF INFORMATION
OFFICER

OFFICE OF ENTERPRISE TECHNOLOGY SERVICES

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January 24, 2023

The Honorable Ronald D. Kouchi
President of the Senate
and Members of the Senate
Thirty-Second State Legislature
State Capitol, Room 409
Honolulu, Hawai'i 96813

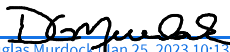
The Honorable Scott K. Saiki
Speaker and Members of the
House of Representatives
Thirty-Second State Legislature
State Capitol, Room 431
Honolulu, Hawai'i 96813

Aloha Senate President Kouchi, Speaker Saiki, and Members of the Legislature:

Pursuant to HRS section 27-43.6, which requires the Chief Information Officer to submit applicable independent verification and validation (IV&V) reports to the Legislature within ten days of receiving the report, please find attached the report the Office of Enterprise Technology Services received for the State of Hawai'i, Public Utilities Commission (PUC), Content and Document Management System Project.

In accordance with HRS section 93-16, this report may be viewed electronically at <http://ets.hawaii.gov> (see "Reports").

Sincerely,


Douglas Murdock (Jan 25, 2023 10:13 HST)

Douglas Murdock
Chief Information Officer
State of Hawai'i

Attachment



Content and Document Management System (CDMS) Project

Hawaii Public Utilities Commission (PUC)

IV&V Monthly Status Report - FINAL
For Reporting Period: **December 2022**

Draft Submitted: 1/11/2023

Final Submitted: 1/24/2023

Overview

- Executive Summary
- IV&V Findings and Recommendations
- IV&V Preliminary Concerns
- IV&V Scope and Approach
- IV&V Engagement Status
- Appendices
 - A – IV&V Criticality Ratings
 - B – IV&V Inputs
 - C – Upcoming IV&V Activities



Executive Summary

As the Project moves toward completing the execution / system development phase, the SI has made good progress in addressing requirement gaps that were identified during quality assurance (QA) testing and review. The SI recently requested sign-off from PUC for completion of the development phase of the project, however, PUC was not confident the SI had met all system requirements based on designs that have been demonstrated thus far. PUC then initiated an internal QA review of the system and found multiple instances of bugs and core functionality that were missing or that did not meet their expectations. Though the SI made progress in correcting these defects, the project schedule has been delayed by at least 6 weeks. User Acceptance Testing (UAT) is now slated to begin late February 2023 and the projected go-live date has moved from March 20, 2023, to May 8, 2023.

PUC continued to work through challenges acquiring a new card-not-present vendor and awarded the RFP to a vendor. PUC is in contract negotiations and expects to onboard the vendor early January 2023.



Executive Summary

Dec '22	Category	IV&V Summary
L	Project Management	PUC SMEs and staff were available to conduct the additional system review and testing needed to determine if the product met their satisfaction prior to agreeing that the execution / system development phase of the Project is complete.
M		PUC identified approximately 80 bugs and missing functionality, with 22 items that needed to be addressed prior to agreeing that the Execution Phase was complete. Because the Execution Phase was not signed off on as originally planned, the SI has not begun its System Testing phase but anticipates beginning System Testing on January 9, 2023. The Project is about 6 weeks behind schedule and the March 20, 2023 go-live date is anticipated to be moved to May 8, 2023.
L		The Project plans on going live with some data that cannot be cleaned up prior to go-live, specifically, duplicate accounts that could not be identified via code. There is risk to going live with bad data which can result in reduced user buy-in or user confusion, however, the Project plans to clean the remaining bad data in Production shortly after data conversion is complete.
M		PUC continued to work through challenges acquiring a new card-not-present vendor and awarded the RFP to a vendor. PUC is in contract negotiations and expects to onboard the vendor early January 2023.



Executive Summary

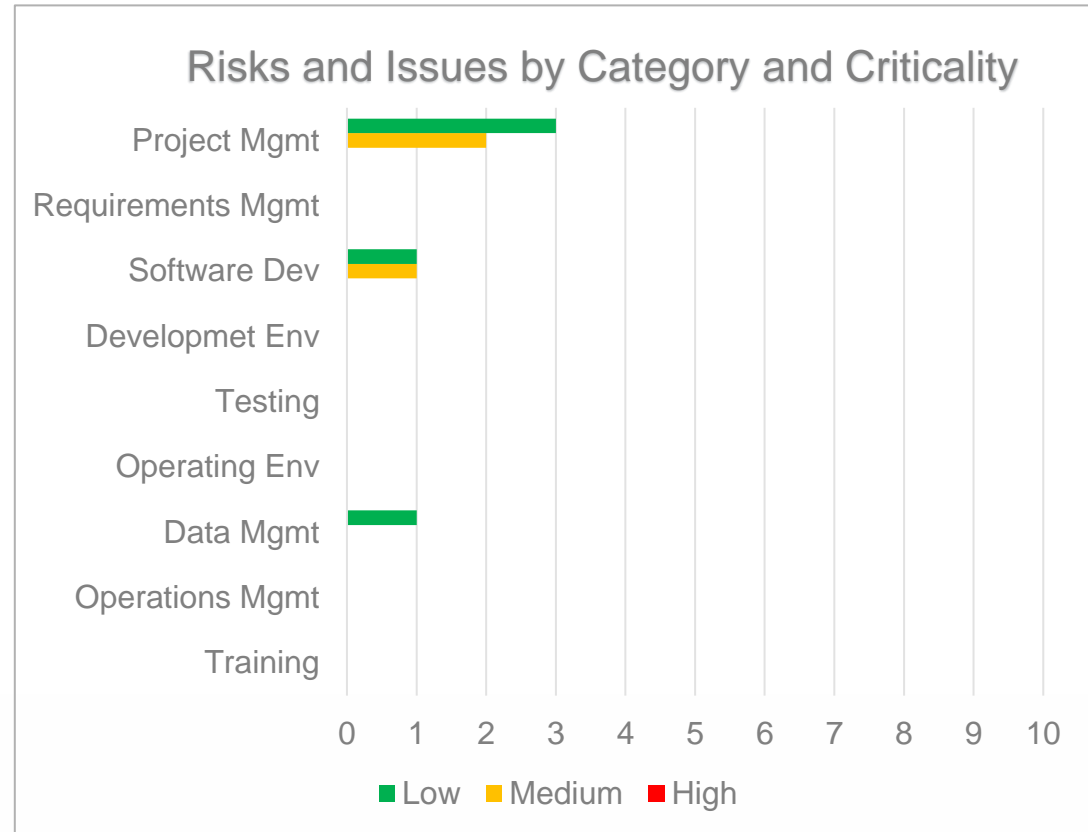
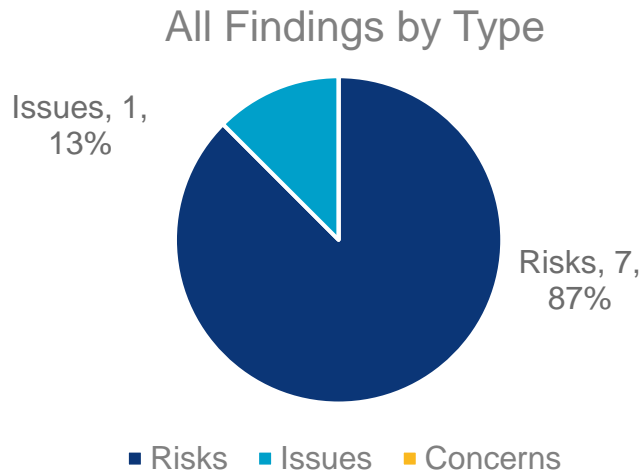
Dec '22	Category	IV&V Summary
M	Software Development	PUC conducted QA testing and review prior to approving the Execution Phase was complete. PUC identified approximately 80 items, with 22 items PUC considered core functionality that needed to be addressed prior to agreeing the Execution Phase was complete causing a project delay. UAT is now slated to begin late February 2023 and the projected go-live date has moved from March 20, 2023, to May 8, 2023. IV&V and PUC remain concerned additional rework found during System Test and User Acceptance Test phases may cause further delays.

Dec '22	Category	IV&V Summary
L	Data Management	The Project plans on going live with some data that cannot be cleaned up prior to go-live, specifically, duplicate accounts that could not be identified via code. There is risk to going live with bad data which can result in reduced user buy-in or increased user confusion.



Executive Summary

IV&V is monitoring eight findings. There are seven risks and one issue. The issue is related to Software Development and is rated at a medium criticality. Two risks are medium, and five risks are low criticality. Five risks fall in the Project Management category, one falls under Software Development and one falls under Data Management.



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IV&V Findings and Recommendations

IV&V Findings and Recommendations - Risks

IV&V ID #14	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021
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Title: Limited PUC resource availability could lead to schedule delays and incomplete system design.

Observation: Although the CDMS Project is a high priority at the PUC, resource limitations appear to exist throughout the life cycle of the Project. These constraints were communicated to the System Integrator (SI) early in the project for planning purposes.

Context: System development projects require coordination and engagement between the SI and the client in order to accurately document business needs, processes, user stories, business rules, and anything needed to build a system that meets the client's needs.

Impact: Schedule delays, increased project cost, implementation of a solution that that does not meet the PUC's needs

Updates

12/31/2022: PUC SMEs and staff conducted the additional quality assurance testing and review needed to determine if the product met their satisfaction prior to agreeing that the Execution Phase of the Project was complete. Despite PUC availability, it took PUC SMEs approximately 2 weeks to complete the initial review, about another week to compile and report results, and another 3 weeks for the Project to fix and retest functionality. Due to the delays, the current go-live date of March 20, 2023 is anticipated to be moved to May 8, 2023. Although delayed, this new go-live date occurs after PUC's busy filing period which could make it easier for PUC staff to implement the new solution.



IV&V Findings and Recommendations - Risks

IV&V ID #14 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
The Project conduct detailed resource planning under the new schedule to avoid resource constraints.			Medium Term	New
PUC PM and SI PM develop a plan to address these constraint and work closely together throughout the project to plan important meetings based on resource availability.			Long Term	In progress
SI develop fully resourced work plan.			Short Term	Not started
PUC and SI review Sprint Plan and ceremonies to identify specific resources to help identify resource risk that can be addressed before sprint cycles begin.			Short Term	In progress
SI employ agile processes and methodologies so that progress can be made regardless of PUC resource availability.			Long Term	In progress



IV&V Findings and Recommendations - Risks

IV&V ID #15	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021
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Title: Project deliverables and artifacts that lack sufficient detail could lead to project delays, misunderstandings, inefficient project execution, and rework.

Observation: Early SI submissions of project deliverables lacked sufficient detail.

Context: Project planning documentation such as the Project Plan, Risk Management Plan, Communication Plan and Change Management Plan, can be effective tools for projects of this size to increase stakeholder understanding of the goals, approach, steps, timelines, roles and responsibilities. Additionally, conceptual designs, requirements traceability matrices, and process maps can also provide important information for successfully developing a system that meets PUC's needs.

Impact: Failure to provide sufficient detail in project deliverables can lead to project team confusion, missteps, project delays, misunderstandings, inefficient project execution, and rework.

Updates

12/31/2022: After receiving PUC comments, the SI resubmitted Deliverables 4.1, 4.2, 4.4, 4.5, 4.6 and 4.9 (Execution Phase Complete Deliverables) on December 16, 2022. However, because PUC was unsatisfied with the Product's level of development after conducting their own Quality Assurance testing, PUC has not approved and agreed that the Project has completed its Execution Phase. The Project anticipates the Execution Phase deliverables will be approved by January 9, 2023.



IV&V Findings and Recommendations - Risks

IV&V ID #15 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
Although DEDs were developed for all deliverables, the SI should involve PUC before providing the draft deliverable to obtain feedback and expedite review cycles.			Long term	In progress
The SI should perform additional QA of deliverables prior to submission			Long term	In progress



IV&V Preliminary Concerns

ID #16	Type: Risk	Status: In progress	Category: Project Management
	Rating: Medium		Date Opened: September 30, 2021

Title: Adoption of an aggressive schedule can lead to poor system design, PUC stakeholder frustration, and stretch PUC resources beyond their capacity.

Observation: The project has an aggressive schedule with little slack given the volume of deliverables and artifacts, the availability of PUC resources, and the perceived cadence of project meetings and workshops.

Context: A schedule with flexibility and sufficient slack to accommodate project changes that impact the schedule such as resource availability, activities that take longer than anticipated, or missed dependencies, typically result in a project that is delivered on time. Projects with aggressive schedules tend to rush project activities to meet deadlines.

Impact: Rushed project activities can reduce document and system quality. When activities do not seem thorough, customer frustration can result. A rushed schedule can place unnecessary demand on PUC resources, especially if PUC resources are already fully utilized.

Updates

12/31/2022: Although the SI reported the Execution Phase was completed within the planned 10 sprints and all required user stories were developed, PUC was not satisfied with the Product's completeness after conducting their own QA testing and review. Out of the approximate 80 items PUC identified, PUC asked the SI to address approximately 22 core functionality items prior to signing off on the completion of the Execution Phase. The SI anticipates beginning System Testing on January 9, 2023. The project is about 6 weeks behind schedule and the March 20, 2023 go-live date is anticipated to be moved to May 8, 2023. The SI plans to update its project schedule once the Execution Phase is complete.



IV&V Findings and Recommendations - Risks

IV&V ID #16 (cont.)	Type: Risk Rating: Medium	Status: In progress	Category: Project Management Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
Provide reports that communicate progress clearly such as a burndown chart and sprint metrics such as planned user stories, completed user stories, cancelled user stories, and new/added user stories so as to clearly demonstrate if the project is on track or not.			Medium term	In progress



IV&V Findings and Recommendations - Risks

IV&V ID #17	Type: Issue Rating: Medium	Status: In progress	Category: Software Management Date Opened: September 30, 2021
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Title: Inefficient business analysis activities could lead to rework, schedule delays, SME frustration, and poor system design

Observation: PUC and IV&V were concerned that many analysis outputs lacked sufficient quality and comprehensiveness. For example 1) PUC workshop attendees mentioned various workshops and meetings were not very useful, unorganized and unproductive; 2) The workshop cadence seemed slow and did not appear to achieve all intended goals of each workshop session; 3) Although not a contractual requirement, meeting notes from the workshops were not sent to meeting attendees which helps confirm the SI's understanding and shows visibility that the SI understands PUC's needs; 4) Although not explicitly required, PUC requested the SI to review the business documentation provided by a 3rd party prior to conducting the as-is workshops to save time and not start from a blank slate. Despite having access to and reviewing the existing business documentation, PUC observed many questions and time spent on areas that were already documented and PUC was not confident as to how much of the existing documentation was leveraged.

Context: Efficient business analysis processes promote effective communications resulting in productive meetings, good project documentation that provides clarity to complex topics, and overall, foster trust.

Impact: Inefficient analysis activities can negatively impact the Project. For example, 1) Project delays can occur if meetings do not meet intended goals and require additional clarification; 2) Rework and redesign can happen if accurate information was not solicited because participant expectations were not clear during the meeting; 3) Client buy-in and system acceptance may reduce.

Updates

12/31/2022: PUC conducted QA testing and review prior to signing off on the completion of the Execution Phase. PUC identified approximately 80 bugs and missing functionality, and asked the SI to address approximately 22 core functional items before approving the completion of the Execution Phase which is causing a delay. IV&V and PUC remain concerned additional items found during System Test and User Acceptance Test phases may cause further rework and delays.



IV&V Findings and Recommendations - Risks

IV&V ID #17 (cont.)	Type: Issue Rating: Medium	Status: In progress	Category: Software Management Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
Institute continuous process improvement activities to refine the analysis processes and maximize their cadence without sacrificing quality.			Long term	In progress
Request the SI track their cadence/velocity to improve estimation of task durations to assure planned milestone due dates are realistic.			Long term	In progress



IV&V Findings and Recommendations - Risks

IV&V ID #18	Type: Risk Rating: Low	Status: In progress	Category: Software Management Date Opened: October 28, 2021
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Title: Lack of attention to process improvement can lead to a system that simply automates existing processes instead of improving them

Observation: The extent to which the Project intends to focus on process improvements remains unclear. Pain points do not seem comprehensively tracked or considered during design sessions or whether all stakeholders are aware of or are actively utilizing the pain points list. While IV&V recognizes that change is difficult, some stakeholders appear to be hesitant to let go of familiar processes during the design sessions. It remains unclear if PUC has assigned the role of change champion to drive organizational process improvements.

Context: IT Projects that assign change champions and prioritize process improvement have an increased likelihood of resulting in systems that meet the organization's future business needs and improve system acceptance.

Impact: Lack of attention to process improvement can lead to a final product that fails to provide maximum value to users. Tracking pain points can be an effective OCM strategy to promote user adoption and increase user buy-in by providing visibility into how the system can resolve their pain points. Also, identifying and implementing opportunities for process improvement avoids SME frustration and rework.

Updates

12/31/2022: During PUC's QA review, PUC reported finding process gaps as they were able to test more end-to-end functionality. The SI will continue to work on these items prior to UAT.



IV&V Findings and Recommendations - Risks

IV&V ID #18 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Software Management Date Opened: October 28, 2021	
Recommendations/Action Items			Period	Status
Identify a PUC process improvement resource to drive/coordinate organizational process improvement efforts and assure system related processes are optimized. This resource could attend design sessions and validate designs support process improvement.			Short term	Not started
Work closely with the SI to identify opportunities for process improvement and implement associated features in the system being careful not to overwhelm users with too much change.			Long term	In progress
Formally engage stakeholders in identifying and tracking pain point and out-of-scope requirements so they are not forgotten and can be revisited in future project phases or other organizational initiatives.			Long term	In progress



IV&V Findings and Recommendations - Risks

ID
#19

Type: Risk

Rating: Low

Status: In progress

Category: Project Management

Date Opened: November 30, 2021

Title: Key PUC project resources performing multiple roles could lead to schedule delays and significant project disruption.

Observation: IV&V has noted that at least two of the PUC project team members perform multiple roles and responsibilities on the project which may impact their ability to be successful if project demands increase.

In addition to serving as PUC's CDMS PM, this position also performs the following roles: Organizational Change Management lead, Process Improvement lead, Business Analyst Co-lead, User Acceptance Test (UAT) Co-lead, and Contract Administrator. In addition to performing ongoing operational responsibilities, the PUC CDMS Technical Lead is the Project IT Sponsor, Data SME, BA Co-Lead, and User Acceptance Test Co-Lead, and is heavily relied on for business analysis.

While these team members have indicated a strong commitment to project success, each has multiple competing priorities. The team members stated their support staff, including the new communications lead, will take on more responsibility to alleviate demands on their time. Also, the team members believe that the overall future workload will lessen.

It remains unclear if PUC staffing levels are appropriate for this project.

Context: Typically, Hybrid Agile projects require an increased level of customer engagement through all phases of the project. Overreliance on key resources can not only overtax and thereby reduce the effectiveness of these key individuals but also present a risk of significant project disruption in the event of their departure.

Impact: If the PUC PM and Technical SME are unable to transfer some responsibilities to other PUC resources, this could stretch them beyond their capacity which may lead to project delays and a decrease in quality in the project tasks they perform.

Updates

12/31/2022: The Project continues to be heavily reliant on the new PUC PM and Technical SME for support. The PUC PM focused on facilitating PUC's additional QA testing to determine if the Execution Phase was complete and whether the product met PUC's satisfaction. The Technical PM was able to complete most of the data cleansing and data decision action items. The Project does not anticipate their availability to cause project delays.



IV&V Findings and Recommendations - Risks

IV&V ID #19	Type: Risk Rating: Low	Status: In progress	Category: Software Management Date Opened: October 28, 2021	
Recommendations/Action Items			Period	Status
Identify a PUC process improvement resource to drive/coordinate organizational process improvement efforts and assure system related processes are optimized. This resource could attend design sessions and validate designs support process improvement.			Short term	Not started
Work closely with the SI to identify opportunities for process improvement and implement associated features in the system being careful not to overwhelm users with too much change.			Long term	In progress
Formally engage stakeholders in identifying and tracking pain point and out-of-scope requirements so they are not forgotten and can be revisited in future project phases or other organizational initiatives.			Long term	In progress



IV&V Findings and Recommendations - Risks

ID
#20

Type: Risk

Rating: Low

Status: In progress

Category: Data Management

Date Opened: March 31, 2022

Title: Data cleansing challenges could overwhelm PUC SMEs and could confuse users, reduce user buy-in, and/or lead to schedule delays if the Project went live with some bad data

Observation: IV&V is concerned with the poor quality of the legacy system data and whether PUC has the capacity to effectively cleanse their data. Further, if the project aims to meet data conversion milestones, the project may elect to go-live with some bad data to meet their planned go-live date.

Context: Typically, any bad data is addressed prior to go live to facilitate user adoption and to increase perceived system quality.

Impact: If all important data is not cleaned up prior to go-live, user adoption may be challenged, and user perception of the system may be diminished.

Updates

12/31/2022: The Project is on track to conduct UAT with converted production data. The Project also plans on going live with some data that cannot be cleansed prior to go-live, specifically, duplicate accounts that could not be identified programmatically. While there is risk to going live with bad data that can result in reduced user buy-in or increased user confusion, however, the Project plans to clean the remaining bad data in Production shortly after data conversion is complete.



IV&V Findings and Recommendations - Risks

IV&V ID #20 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Data Management Date Opened: March 31, 2022	
Recommendations/Action Items			Period	Status
The Project determine how long it will take to complete the post go live cleanup activities and if possible, complete after go-live is complete, but prior to production users using the system.			Medium term	Not Started



IV&V Findings and Recommendations - Risks

IV&V ID #21	Type: Risk Rating: Medium	Status: New	Category: Project Management Date Opened: May 31, 2022
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Title: Delays in establishing card-not-present payment gateway could lead to schedule delays and increased cost

Observation: The Project elected to pause most activities for almost 3 months to procure a card-not-present payment processing vendor. Originally, the Project was planning on forego a public solicitation for these services, but the State Procurement Office required it. The SI stated the pause will be a no cost change order. .

Context: The Project has had past difficulties accurately estimating the procurement of the card-not-present service vendor and it is unclear how accurate these new estimates are.

Impact: If the Project is unable to begin processing payments on August 14th, 2022, the Project may be further delayed. Given the SI will not charge the customer for the delay, the budget impact could be minimal. However, the SI stated if payment processing is not available by 8/14, there is a \$10,000 a week fee for schedule extension. If the vendor is not ready for transaction by 8/14, further delayed, \$10,000 a week. PUC stated they are confident they can complete this procurement before the 8/14 deadline but if the Project is unable to meet these deadlines, the Project stated they have alternative plans.

Updates

12/31/2022: PUC continued to work through challenges acquiring a new card-not-present vendor and awarded the RFP to a vendor. PUC is in contract negotiations and expects to onboard the vendor early January 2023.



IV&V Findings and Recommendations - Risks

IV&V ID #21 (cont.)	Type: Risk Rating: Medium	Status: In progress	Category: Project Management Date Opened: May 31, 2022	
Recommendations/Action Items			Period	Status
Closely monitor procurement for any signs of delay			Medium term	In Progress
Develop mitigation strategies if procurement activities appear unfavorable			Medium term	In progress



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IV&V Preliminary Concerns

(These are not findings, rather, these are observations based on limited information at the time of reporting and require further discovery, research and clarification.)

IV&V Preliminary Concerns

No updates or new preliminary concerns.





IV&V Scope and Approach

IV&V Scope

- In accordance with PCG's contract for the CDMS Project at the PUC, the subject areas that are within the scope of IV&V activities include:
 - Project Management
 - Requirements Management
 - Software Development
 - Development Environment
 - System and Acceptance Testing
 - Operating Environment
 - Data Management
 - Operations Oversight
 - Training
- As the CDMS IV&V project progresses, PCG's activities will focus on areas that represent highest risk to the Hawaii PUC.



IV&V Approach and Methodology

- What is Independent Verification and Validation (IV&V)?
 - Oversight by an independent third party that assesses the project against industry standards to provide an unbiased view to stakeholders
 - The goal of IV&V is to help the State get the solution they want based on requirements and have it built according to best practices
 - IV&V helps improve design visibility and traceability and identifies (potential) problems early
 - IV&V objectively identifies risks and communicates to project leadership for risk management
- PCG IV&V Methodology
 - Consists of a 4-part process made up of the following areas:
 1. **Discovery** – Discovery consists of reviewing documentation, work products and deliverables, interviewing project team members, and determining applicable standards, best practices and tools
 2. **Research and Analysis** – Research and analysis is conducted in order to form an objective opinion.
 3. **Clarification** – Clarification from project team members is sought to ensure agreement and concurrence of facts between the State, the Vendor, and PCG.
 4. **Delivery of Findings** – Findings, observations, and risk assessments are documented in this monthly report and the accompanying Findings and Recommendations log. These documents are then shared with project leadership on both the State and Vendor side for them to consider and take appropriate action on.
















Note: This report is a point-in-time document with findings accurate as of the last day in the reporting period.






IV&V Engagement Status



IV&V Engagement Status

IV&V Engagement Area	Oct	Nov	Dec	Comments
IV&V Budget				The IV&V engagement is deliverables-based and PUC is not at risk of being over budget.
IV&V Schedule				The IV&V engagement aligns with the SI schedule.
IV&V Deliverables				There are no known risks to upcoming IV&V deliverables.
IV&V Staffing				The IV&V team maintains the proposed team and there are no foreseeable changes.
IV&V Scope				The IV&V project continues to operate within the scope of its engagement.




Engagement Status Legend		
 The engagement area is within acceptable parameters.	 The engagement area is somewhat outside acceptable parameters.	 The engagement area poses a significant risk to the IV&V project quality and requires immediate attention.

Appendices



Appendix A – IV&V Criticality Ratings

See definitions of Criticality Ratings below:

Criticality Rating	Definition
 H	A high rating is assigned if there is a possibility of substantial impact to product quality, scope, cost, or schedule. A major disruption is likely and the consequences would be unacceptable. A different approach is required. Mitigation strategies should be evaluated and acted upon immediately.
 M	A medium rating is assigned if there is a possibility of moderate impact to product quality, scope, cost, or schedule. Some disruption is likely and a different approach may be required. Mitigation strategies should be evaluated and implemented as soon as feasible.
 L	A low rating is assigned if there is a possibility of slight impact to product quality, scope, cost, or schedule. Minimal disruption is likely and some oversight is most likely needed to ensure that the risk remains low. Mitigation strategies should be considered for implementation when possible.

Appendix B – IV&V Inputs

Meetings attended during the reporting period:	Artifacts reviewed during the reporting period:
Weekly check-ins with PUC	Deliverables 4.1, 4.2, 4.4, 4.5, 4.6 and 4.9 (Execution Phase Complete Deliverables)
Monthly check-ins with PP	
Weekly PM Meetings	
CDMS – Risk Management Meeting	
Deliverable review sessions	
Working sessions	
Sprint 10 demos	
Quality review sessions	
Quality review findings meetings	



Appendix C – Upcoming IV&V Activities

Anticipated meetings to attend next period	Anticipated artifacts to review next period
Weekly check-ins with PUC	Test Plan / Test Artifacts
Monthly check-ins with PP	
Weekly PM Meetings	
CDMS – Risk Management Meeting	
Deliverable Review Sessions	



Appendix D – Recommendation Periods

Period	Definition
Short Term	These are recommendations that should be completed within the month and/or require less than a month to complete
Medium Term	These are recommendations that should be completed within 2-6 months and/or require 2-6 months to complete
Long Term	These are recommendations that should be completed within 6 months to a year and/or require > 6 months to complete.





Solutions that Matter