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December 3, 2021

The Honorable Ronald D. Kouchi,  
President, and  
Members of The Senate  
Thirty-First State Legislature  
Hawaii State Capitol, Room 409  
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki,  
Speaker, and  
Members of The House of Representatives  
Thirty-First State Legislature  
Hawaii State Capitol, Room 431  
Honolulu, Hawaii 96813

Dear 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 IV&V report the Office of Enterprise Technology Services received for the Hawaii Public Utilities Commission's 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 (Dec 9, 2021 10:26 HST)

DOUGLAS MURDOCK  
Chief Information Officer  
State of Hawai'i

Attachment (1)



# Content and Document Management System (CDMS) Project

Hawaii Public Utilities Commission (PUC)

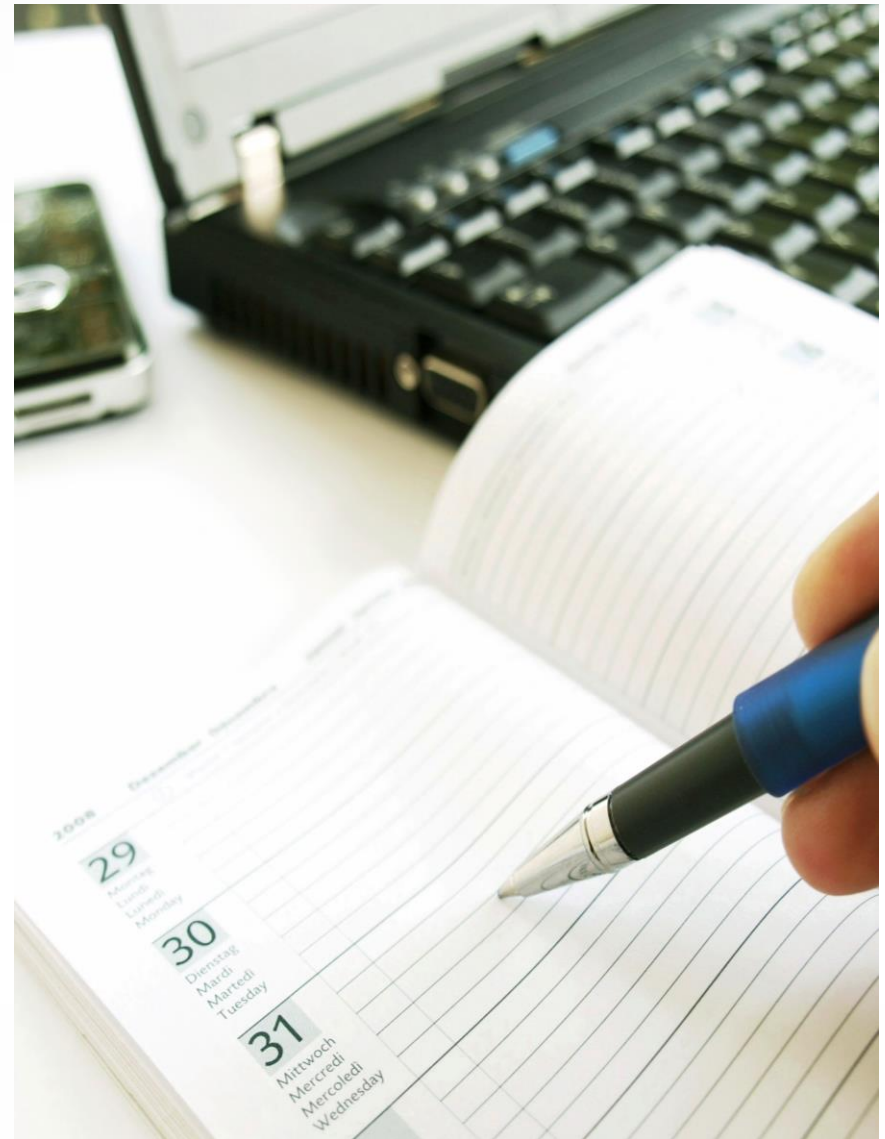
IV&V Monthly Status Report  
For Reporting Period: **October 2021**

*Draft Submitted: 11/05/2021*

*Final Submitted: 11/30/2021*

# Overview

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



# Executive Summary

During this reporting period, the project continued to face concerns that were reported last month – an aggressive project schedule, inefficient analysis activities and project documentation that lacks sufficient detail. These concerns, coupled with PUC resource constraints reduced PUC confidence that a system that fully meets its needs will be implemented under the current timeline.

Despite these concerns, the System Integrator (SI) completed Sprint 1 Backlog Grooming sessions, began conducting Sprint 2 Backlog Grooming sessions, and began Sprint 1 Development activities to set up base Salesforce configurations. PUC resources were able to fully participate despite initial concerns that the project may not be able to accommodate their busy schedules.

The SI also submitted numerous deliverables such as the 3.1 RTM/Project Scope, 3.2 Conceptual Architecture & Solution Design and 3.3 Solution Implementation Plan. However, the PUC provided the SI with numerous comments and rejected the initial drafts. The SI submitted updated drafts at the end of the reporting period. PUC and IV&V remain concerned with SI deliverable quality as well as how extended review periods could impact the schedule.

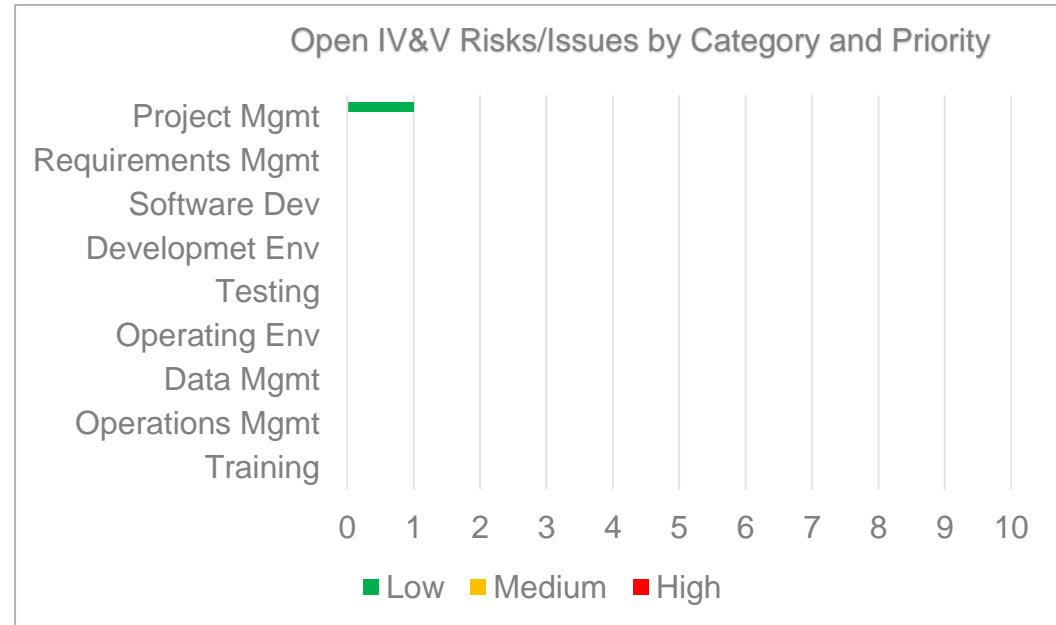
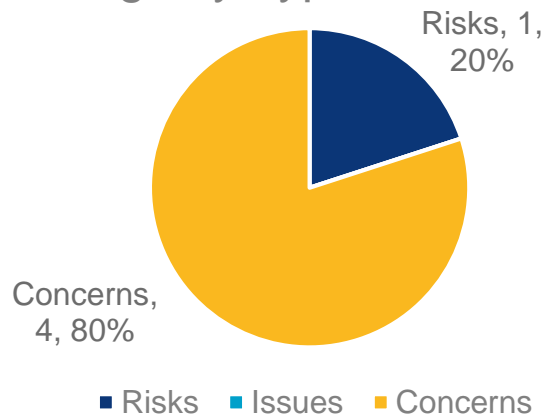
IV&V opened a new preliminary concern (IV&V #18) regarding a lack of attention to process improvement which can lead to a system that simply automates existing processes instead of improving them. Automating a broken business process will simply automate an inefficient business process, creating even more errors and inefficiencies. Although pain points have been identified and documented, the extent to which the project team intends to focus on process improvement remains unclear.

Oct '21	Category	IV&V Summary
L	Project Management	PUC resources were able to fully participate in project activities despite initial concerns that the project may not be able to accommodate their busy schedules. PUC and the SI have dedicated significant effort to plan SME activities well into the future in order to assure optimal SME participation.

# Executive Summary

IV&V is monitoring five findings. One is a risk and four are preliminary concerns. The one risk is rated low and is found in the project management category.

## Findings by Type



The background is a solid blue gradient. Overlaid on this are several abstract geometric elements: squares of various sizes and colors (some solid, some outlined) and thin white lines that connect some of the squares, creating a network-like structure. The elements are primarily located on the left and right sides of the slide, framing the central text.

## **IV&V Findings and Recommendations**

# IV&V Findings and Recommendations - Risks

IV&V ID #14	Type: Risk	Status: In progress	Category: Project Management
	Rating: Low		Date Opened: September 30, 2021

**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

October 29, 2021: PUC staff have been available to attend meetings as needed. Staff availability did not impact project activities this reporting period. PUC and the SI continue to manage resources appropriately.

# IV&V Findings and Recommendations - Risks

IV&V ID #14 (cont.)	Type: Risk	Status: In progress	Category: Project Management	
	Rating: Low		Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
PUC PM and SI PM develop a plan to address these constraints. 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



The background is a solid blue color. It is decorated with several abstract geometric elements: some are solid squares of varying shades of blue, while others are white outlines of squares or rectangles. These shapes are scattered across the slide, with a higher concentration on the left side and some on the right. The overall aesthetic is modern and minimalist.

## 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

ID #15	Type: Preliminary Concern	Status: In progress	Category: Project Management
	Rating: n/a		Date Opened: September 30, 2021

**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 a project plan, risk management plan, communication plan and change management plan, can be effective tools for project 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 PUCs needs.

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

## Updates

October 31, 2021: At the end of this reporting period, the SI updated and submitted several project deliverables based on comments received. IVV has not reviewed these updated drafts. If SI deliverable quality continues to suffer, extended review cycles and schedule delays could occur.



# IV&V Preliminary Concerns

ID #16	Type: Preliminary Concern	Status: In progress	Category: Project Management
	Rating: n/a		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 lowers document and system quality. This causes customer frustration when the project appears rushed and activities do not seem thorough. A rushed schedule places unnecessary demand on PUC resources, especially if PUC resources are already fully utilized.

## Updates

October 29, 2021: The SI has stated there is slack built into the schedule to accommodate tasks such as System Testing, UAT, and design deliverable reviews.

# IV&V Preliminary Concerns

ID # 17	Type: Preliminary Concern	Status: In progress	Category: Requirements Management
	Rating: n/a		Date Opened: September 30, 2021

**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) Feedback from 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 communication, results in efficient meetings, provides clarity to complex topics, results in good project documentation and overall fosters client trust.

**Impact:** Inefficient analysis activities can have varying negative impacts to the project. For example: 1) Project delays can occur if meetings do not meet intended goals and require additional meetings and time. 2) Rework and redesign can happen if accurate information was not solicited because participants were not sure of their expectations during the meeting. 3) If client frustration happens, client buy-in and acceptance of the new system can be reduced resulting in a lower quality product

## Updates

October 29, 2021: IVV has observed that some workshop sessions have become more productive. However, PUC leadership remains concerned with the pace of SI analysis activities. Despite the project analysis phase being recently completed, if requirements and designs have not been adequately analyzed the project may have to perform additional analysis which could lead to rework and schedule delays.

# IV&V Preliminary Concerns

ID #18	Type: Preliminary Concern	Status: New	Category: Project Management
	Rating: n/a		Date Opened: October 28, 2021

**Title:** Lack of attention to process improvement can lead to a system that simply automates existing processes instead of improving them

**Observation:** It remains unclear the extent to which the project team intends to focus on process improvements. It remains unclear if pain points are being comprehensively tracked or considered during design sessions or whether all stakeholders are aware of or are actively utilizing the pain points tracking list. There appears to be indications that some stakeholders desire to hold onto long standing processes that they've become accustomed too. It remains unclear if PUC has assigned the role of change champion to drive organizational process improvements.

**Context:** Organizations that do not prioritize process improvement and assign a resource to drive organization process improvement can not only reduce overall organizational efficiency but drive systems designs that are inefficient and require additional future funding for rework or business process re-engineering.

**Impact:** While there may be advantages to avoiding overwhelming SME's with too much change/improvements, strategically selecting opportunities for improvements can be beneficial and can avoid frustration and rework once the opportunities are fully realized by the SME's. Failure to track pain points and business problems can lead to a final product that fails to provide maximum value to the users. Tracking pain points can be an effective OCM strategy for user adoption and buy-in by providing visibility to the users of problems the system is solving as well as showing them traceability of pain points to system features during sprint demos.

## Updates

October 28, 2021: n/a



## 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	July	Aug	Sept	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. At this time.
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		
 <p>The engagement area is within acceptable parameters.</p>	 <p>The engagement area is somewhat outside acceptable parameters.</p>	 <p>The engagement area poses a significant risk to the IV&amp;V project quality and requires immediate attention.</p>

# Appendices

# Appendix A – IV&V Criticality Ratings

See definitions of Criticality Ratings below:

Criticality Rating	Definition
	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.
	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.
	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:
Standing: Bi-weekly risk meetings	3.1 Requirements Traceability Matrix & Project Scope Acceptance
Standing: Weekly IVV check-in meetings	3.2 Conceptual Architecture & Solution Design Documentation
Standing: Weekly project status meetings	3.3 Solution Implementation Plan
Standing: Daily standups as needed	Road Map/Sprint Plan
Oct 6 – Sprint 1 Grooming	Sprint 1 User Stories
Oct 7 – Sprint 1 Grooming	
Oct 26 – Sprint 2 Grooming	
Oct 28 – Sprint 2 Grooming	

# Appendix C – Upcoming IV&V Activities

Anticipated meetings to attend next period	Anticipated artifacts to review next period
Deliverable Walkthroughs	3.1 Requirements Traceability Matrix & Project Scope Acceptance (Resubmission)
Standing: Bi-weekly risk meetings	3.2 Conceptual Architecture & Solution Design Documentation (Resubmission)
Standing: Weekly IVV check-in meetings	3.3 Solution Implementation Plan (Resubmission)
Standing: Weekly project status meetings	Road Map/Sprint Plan
Standing: Daily standups as needed	Sprint 1 User Stories
Sprint 2 Refinement Meetings	Sprint 2 User Stories

# Appendix D – Recommendation Periods

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



**Solutions that Matter**