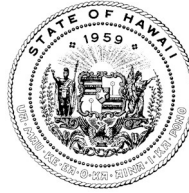


DAVID Y. IGE  
GOVERNOR



DEPT. COMM. INFO 08  
DOUGLAS MURDOCK  
CHIEF INFORMATION  
OFFICER

**OFFICE OF ENTERPRISE TECHNOLOGY SERVICES**

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November 4, 2022

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

The Honorable Scott K. Saiki  
Speaker and Members of the  
House of Representatives  
Thirty-First 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 (Nov 4, 2022 10:04 HST)

Douglas Murdock  
Chief Information Officer  
State of Hawai'i

Attachment



# Content and Document Management System (CDMS) Project

Hawaii Public Utilities Commission (PUC)

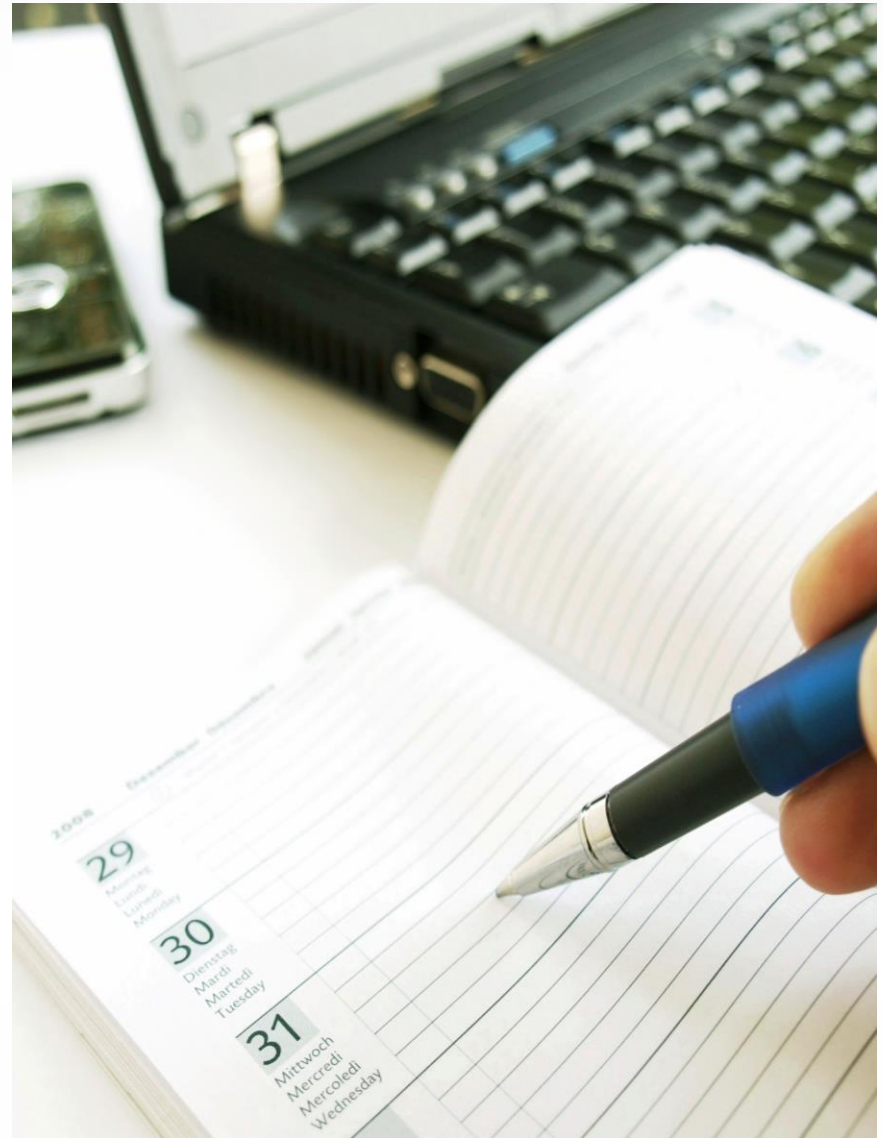
IV&V Monthly Status Report  
For Reporting Period: **May 2022**

*Draft Submitted: 6/7/2022*

*Final Submitted: 8/18/2022*

# 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

The Project appears to be making good progress and completed 8 of 10 planned monthly sprints. However, due to delays in procuring the card-not-present processor, the Project has elected to pause most project activities for three months, effective May 23, 2022. The Project plans to resume all activities on August 15, 2022. The November 2022 go-live date has been moved to January 2023. If the PUC cannot procure a card-not-present vendor and begin processing payments by August 14, 2022, the project will likely be further delayed and incur additional costs.

PUC and IV&V continue to observe many examples where completed work requires additional refinement resulting in rework. The impact on the schedule, project resources, and/or the system at go-live remains unclear. To help mitigate this risk, the SI intends to leverage a more senior business analyst and use the Project's pause to continue some development work.

During the pause, the Project will continue onboarding a new PM, which may alleviate the existing PM's duties when the project resumes. PUC stated their technical lead will continue data cleansing and participating in working sessions during the pause. PUC SMEs and users have been available to meet current project demands, but it remains unclear if these resources will be able to meet the new project schedule given that some critical activities will likely occur during the holiday season.



# Executive Summary

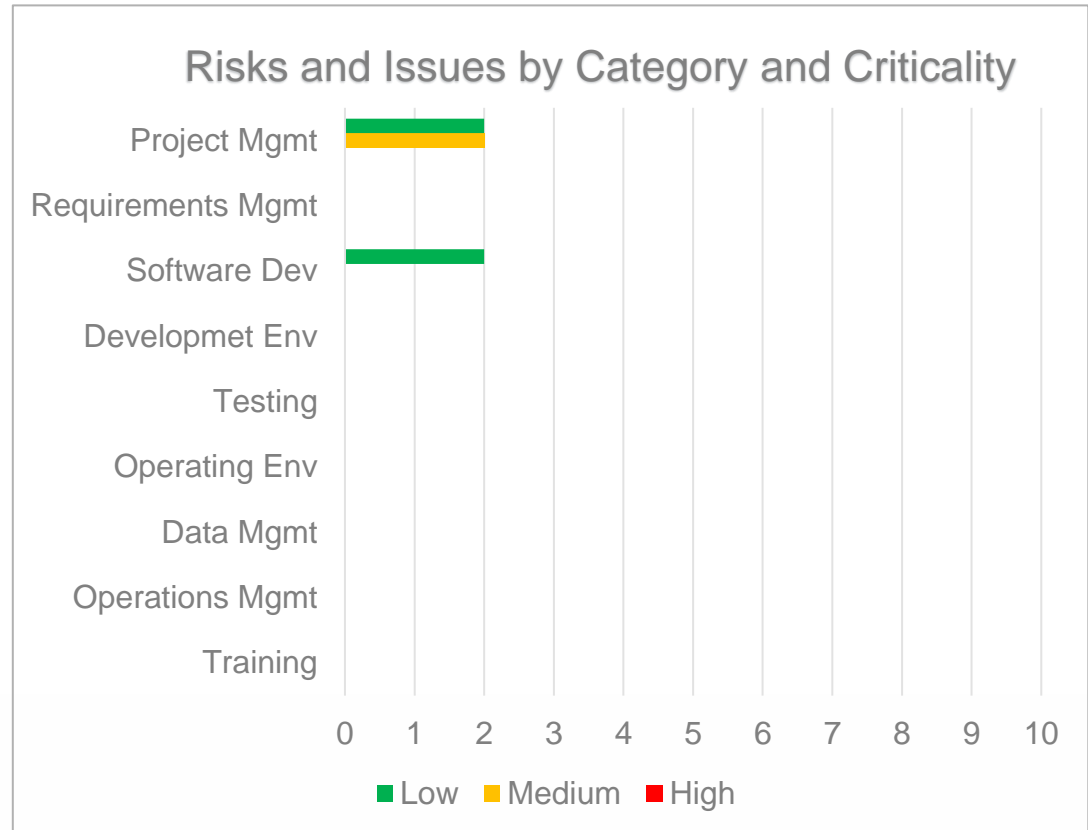
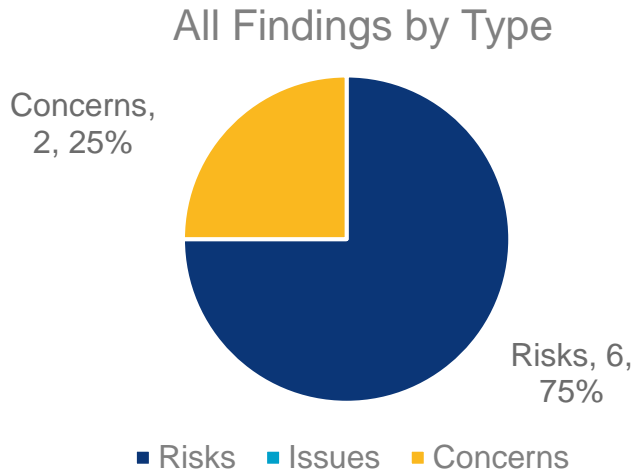
Feb '22	Category	IV&V Summary
M	Project Management	The Project elected to pause most activities for almost three months to procure a card-not-present payment processing vendor. Originally, the Project was planning to forego a public solicitation for these services, but the State Procurement Office required it. The Project anticipates payment processing will be available August 14, 2022, but if it is not ready by then, the Project could face additional delays and/or cost.
M		The Project completed Sprint 8 on time, but PUC and IV&V continue to observe many "Development Complete" user stories that require further refinement and/or contain defects. Although the Project is pausing for three months and the SI plans to continue some development activities during that time, it remains unclear if the additional refinements could lead to schedule delays when the Project resumes.
L		PUC resources continue to be available and are meeting the Project's needs. However, it remains unclear how the schedule change will impact availability when many resources may be out of office for the holidays.

Feb '22	Category	IV&V Summary
L	Software Development	The Project does not review all user stories thoroughly prior to completing sprint development resulting in PUC feedback and rework. IV&V and PUC remain concerned that the volume of refinement could lead to schedule delays and that PUC feedback does not always lead to solutions that fully meet PUC expectations. However, the SI intends to use a more senior business analyst moving forward to accelerate progress and improve business analysis activities.
L		IV&V observed examples where the SI did not implement some process improvements. IV&V and PUC continue to be concerned with the lack of attention to process improvement could lead to a final product that does not provide optimal value to the users. The SI has stated they are committed to making efforts to improve suboptimal designs prior to go live.



# Executive Summary

IV&V is monitoring eight findings. In total, there are six risks and two preliminary concerns. Two risks are medium and 4 risks remain low. Four risks fall into the Project Management category and two are in the Software Management category.





# **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

5/31/2022: PUC resources continue to be available and are meeting the Project's needs. However, it remains unclear how the new schedule will impact availability when many resources may be out of office for the holidays. For example, critical project activities such as User Acceptance Testing occur the last week of December and the level of PUC resources available during that time is unknown.





# 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 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



# 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

5/31/2022: No deliverables have been due for the past 3 months therefore there are no material updates. All project deliverables have been postponed by 3 months to align with the new schedule.



# IV&V Findings and Recommendations - Risks

<b>IV&amp;V ID #15 (cont.)</b>	<b>Type: Risk</b>  <b>Rating: Low</b>	<b>Status: In progress</b>	<b>Category: Project Management</b>  <b>Date Opened: September 30, 2021</b>	
<b>Recommendations/Action Items</b>			<b>Period</b>	<b>Status</b>
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

5/31/2022: The Project completed Sprint 8 on time, but PUC and IV&V continue to observe many "Development Complete" user stories that require further refinement and/or contain defects. The Project also made the decision to extend the schedule at no cost by about three months to accommodate procurement of the card-not-present payment processor. Although the Project has been put on pause for 3 months and the schedule has been adjusted, it remains unclear if further refinements could lead to schedule delays when the Project resumes. However, this pause should offer some mitigation to this risk given the SI plans to continue some development activities and some PUC project members will continue project activities.



# IV&V Findings and Recommendations - Risks

<b>IV&amp;V ID #16 (cont.)</b>	<b>Type: Risk</b> <b>Rating: Medium</b>	<b>Status: In progress</b>	<b>Category: Project Management</b> <b>Date Opened: September 30, 2021</b>	
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: Risk Rating: Low	Status: In progress	Category: Project 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

5/31/2022: Although there are twice-weekly meetings with the PUC Technical Lead, it appears the Project does not review all user stories to confirm understanding prior to completing sprint development. During sprint validation meetings, PUC is seeing some of the completed functionality for the first time which has led to further refinement and rework. IV&V and PUC remain concerned PUC feedback does not lead to solutions that fully meet PUC expectations and that the volume of refinement could lead to schedule delays. However, the SI intends to use a more senior business analyst moving forward to accelerate and improve business analysis activities.

# IV&V Findings and Recommendations - Risks

<b>IV&amp;V ID #17 (cont.)</b>	<b>Type: Risk</b>  <b>Rating: Low</b>	<b>Status: In progress</b>	<b>Category: Project Management</b>  <b>Date Opened: September 30, 2021</b>	
<b>Recommendations/Action Items</b>			<b>Period</b>	<b>Status</b>
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: Project 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

5/31/2022: PUC has not yet onboarded the new Project Manager to help alleviate the demand on the existing PM. However, with the Project on pause, the demand on the existing PUC PM has currently subsided. The PUC Technical Lead will still be heavily involved with data cleanup and twice weekly refinement meetings.





# IV&V Findings and Recommendations - Risks

<b>IV&amp;V ID #18 (cont.)</b>	<b>Type: Risk</b>  <b>Rating: Low</b>	<b>Status: In progress</b>	<b>Category: Project Management</b>  <b>Date Opened: September 30, 2021</b>	
<b>Recommendations/Action Items</b>			<b>Period</b>	<b>Status</b>
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

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-resent 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

5/31/2022: n/a



# IV&V Findings and Recommendations - Risks

<b>IV&amp;V ID #21 (cont.)</b>	<b>Type: Risk</b> <b>Rating: Medium</b>	<b>Status: In progress</b>	<b>Category: Project Management</b> <b>Date Opened: September 30, 2021</b>	
<b>Recommendations/Action Items</b>			<b>Period</b>	<b>Status</b>
Closely monitor procurement for any signs of delay			Medium term	In Progress
Develop mitigation strategies if procurement activities appear unfavorable			Medium term	In progress



## **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

<b>ID #19</b>	<b>Type: Preliminary Concern</b> <b>Rating: n/a</b>	<b>Status: In progress</b>	<b>Category: Project Management</b> <b>Date Opened: November 30, 2021</b>
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**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

4/29/2022: PUC plans to onboard a new Project Manager in May 2022. It is uncertain what responsibilities the new PM will take over from the existing PM and whether the transition will impact the schedule. Though the PUC Technical Lead appears to be operating at maximum capacity, there does not appear to be any significant impact to the project.



# IV&V Preliminary Concerns

<b>ID #20</b>	<b>Type: Preliminary Concern</b> <b>Rating: n/a</b>	<b>Status: New</b>	<b>Category: Data Management</b> <b>Date Opened: March 31, 2022</b>
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**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

5/31/2022: The Project continues to cleanse data and does not anticipate a high volume of bad data at go-live. During the Project pause, the Project intends to continue data cleanup activities. While the SI stated the technical lead may have constraints reviewing migrated test data, the new extended schedule should give the Project more time to complete data cleanup.





# 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	Mar	Apr	May	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		
 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:
Deliverable Walkthroughs	Organizational Change Management Plan
Standing: Bi-weekly risk meetings	Sprints 1-8 Backlog Report
Standing: Weekly IVV check-in meetings	
Standing: Weekly project status meetings	
Standing: Daily standups as needed	
Standing: Twice Weekly Recurring Working Sessions	
Super User Training	
Sprint 8 Grooming Sessions	
Sprint 8 Demo	
Sprint 8 Requirements Validation Meetings	



# Appendix C – Upcoming IV&V Activities

Anticipated meetings to attend next period	Anticipated artifacts to review next period
Periodic check-ins with PUC	n/a
Periodic check-ins with PP	



# 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**